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THE ADJUSTMENT OF STREET-CAR MEN'S WAGES IN SAN FRANCISCO.

THE arbitration proceedings in the recent dispute between the street-car men and the United Railroads in San Francisco brought out with somewhat unusual clearness a number of the most vital points involved in the adjustment of wages. A strong union and a strong corporation sat down together before an umpire to discuss the sole question: "What constitutes a fair wage?" "Collective bargaining" had been tried, but no agreement had been reached as to a rate. Since one party had to buy what the other party was particularly anxious to sell, namely labor, some terms had to be reached, and both sides agreed to reach them by a process akin to appraisement, as applied to the compulsory sale of property. The discussion turned, therefore, mainly upon the method of appraisement, or how best to ascertain what a fair rate of wages is.

It is the purpose of the present article simply to record the circumstances under which the dispute arose, to state its nature, and to review the arguments advanced on each side and the award made by the arbitration commission, with a view, mainly, to placing on record, for reference, those of the facts and arguments which are likely to be of use to students of economics. No

extended discussion of the important principles involved will be undertaken.

The dispute had its origin in the coincident formation of a combination of capital and of a labor union, and was an attempt on the part of the men to force better terms from their new employers than they had enjoyed under their old, by taking advantage of the exigencies of the transfer of the properties.

Until 1902 the street-car lines in San Francisco were divided among a number of companies. There were eighteen original companies, but these had been reduced to eight by consolidation prior to 1902. The largest of the original companies was the Market Street Cable Railway Co., which, by a consolidation effected in 1896, absorbed ten other companies and took the name of the Market Street Railway Co. This was one of the many guises of the Southern Pacific Co., the corporation controlling the principle steam railroads in California and on the Pacific coast. In 1902 the Market Street railway system and several other lines were bought by a new company known as the United Railroads of San Francisco, and passed from the control of the Southern Pacific, leaving only three independent companies. The capital necessary for the purchase was raised in the East, largely through the agency of Brown Brothers. According to the published reports, the present owners paid $27,500,000 for the properties acquired, which they capitalized at $75,275,000, placing, however, only about $45,000,000, in various stocks and bonds, on the market. The gross earnings in 1901 were reported as $5,125,883; net earnings, $2,065,925; total income, $2,083,-155; surplus available for dividends, $1,275,955.

Until 1902, also, the street-car men employed on the different lines in San Francisco were not unionized. But the excitement incident to the transfer of the property, the uncertainty in the minds of the men as to what the policy of the new owners might be, and an "irritation of long standing" over the severe enforcement of disciplinary measures led the men to form a union. The fact that the union spirit was strong in the city at the time doubtless added to the facility with which the men were brought together. The union was, it is reported, formed secretly, on

account of the opposition of the old management, by which the leaders and those first to join were discharged. This happened about the time of the consolidation of the properties, just before the management was transferred to the new owners and before the new securities were "digested" in the market. The leaders of the union, seeing in these circumstances their opportunity, persuaded the men to make certain demands at once. These demands, which came into shape but gradually, were in the main: (1) for the reinstatement of the men who had been discharged, as it was alleged, for joining the union; for the modification of certain strict rules as to the men's conduct, especially while off duty, and the abolition of the espionage by which the company obtained the information for the enforcement of these rules; (2) an increase in wages from 22½ cents per hour to 25 cents, and the abolition of the payment of a bonus to men long in the service of the company; (3) certain changes in the time cards and rearrangement of the runs so as to make the normal working day ten hours on the car within a maximum period of fourteen hours, and others tending to equalize the work between the different classes of men; and (4) recognition of the union.

The officials of the new company were not yet in the saddle, the active management being still in the hands of the officials of the old company. All important matters affecting the policy of the new owners had to be referred to the eastern owners for final settlement. All of this made the situation peculiarly difficult to deal with, often causing a delay of twenty-four hours in reaching a decision. Public opinion was strongly with the men. The reported system of espionage and the alleged attempted control of the leisure hours of the men excited public sympathy. Furthermore, the rapid rise in prices and the stimulation of all industrial enterprises, which had followed the dark days of the depression just prior to the Spanish war, had led, during 1901 especially, to an increase in wages in many California industries, and a strong public sentiment upheld the demand for a similar increase in carmen's wages. Apparently through ignorance of the extent and strength of the union, the company brusquely refused to listen to the demands: the men struck, and succeeded in tying up the

lines for seven days. At the end of that time the company yielded every point, save recognition of the union (which has since been granted), and even went so far as to accept the resignation of the former general manager of the Market Street system, who had excited the particular hostility of the men.

The success of the street-car men's strike, in April, 1902, cannot be fully understood without reference to the peculiar industrial and political conditions which existed in San Francisco at the time. Following the Spanish war there had been an expansion of shipping activity and a violent rearrangement of the old conditions of commerce, which had taxed the existing resources of the water-front industries to the utmost. All the men in these industries were thereupon organized into unions, which became exceptionally strong. The existence, for many years, of a strong seamen's union, that had enjoyed unusually devoted managment, furnished a model, and the unwonted demand for men afforded the opportunity. It was the somewhat unusual case of industries essentially unskilled being successfully unionized. Expressly to meet this condition the employers had also formed a compact. In one of its frequent outbursts of hospitality, San Francisco had undertaken to entertain the Epworth League Convention in the summer of 1901. Visitors arrived many thousand strong, and the principal express company in the city, which had the contract to deliver the trunks, and which was almost the only organization touching the water front, employing non-union men, found itself unable to handle all the trunks. The manager of this company called upon his brother, who was the manager of a large draying concern, to deliver some of them. The union draymen refused to handle baggage tainted by a contract which threw the bulk of it into the hands of non-union express men, and were promptly discharged in accordance with the policy outlined by the employers' association. This precipitated a general strike, for, out of sympathy, practically all the water-front unions, including some twenty thousand men, were drawn into the fight, and all transportation, draying, and cartage was tied up. This strike was fought with the utmost bitterness, and violence was freely resorted to on the slightest provocation. There was no

adequate ground for the strike, and it can be regarded as simply a trial of strength. No definite terms of peace were made, and the strike finally wore itself out. About the same time there was a strike among the iron workers, especially those engaged in shipbuilding. This, too, was fought with extreme bitterness. These strikes strengthened the union labor movement and heightened the feeling of the men to such a point that when, in the next municipal campaign, a labor-union ticket, headed by a member of the musicians' union, was placed in the field, the ticket won, to the surprise and chagrin of the old party managers. As San Francisco rejoices in an extreme form of the "one man power" charter, the mayor so elected was in practical control of the entire city government.

As a result of this election, which had occurred but shortly before the street-car strike of 1902, the company assumed, whether rightly or wrongly does not appear, that it could not have adequate police protection. There was, however, comparatively little violence, and, save on the first evening of the strike, the cars were not damaged; so that the willingness or unwillingness of the city government to furnish protection did not come to direct proof. Attempts to run the cars with non-union men were balked by "persuasion," rarely in the form of severe violence, and, if the newspaper accounts are to be believed, occasionally by frank and open bribery. The character of the city government, however, contributed in no small degree to the success of the strike through the effect it had on the fears of the company; and it gave peculiar significance to the threat, voiced later by the attorney for the men, "that the fifty thousand union labor men in San Francisco will never — and they ought never to — permit the company to bring in non-union men from outside to take the place of these car men."

As has already been suggested, public sentiment favored the men in this strike, largely because of the alleged oppressive measures used to enforce discipline. But that was not the sole reason why public sentiment was against this particular company. The Southern Pacific Co. and all the roads connected with it had been very unpopular in California. They were commonly

accused of charging exhorbitant rates, and the charge was widely believed. This belief was complicated, and the unpopularity intensified, by the effect on the public mind of the attacks made and the scandal raised by those who conducted the innumerable blackmailing raids of every sort upon the railroad, and by the political maneuvers into which the company allowed itself to be drawn. The Market Street Railway Co., as part of the "Octopus,"[1] shared in this unpopularity, and the new management inherited much of this somewhat unreasoning sentiment.

It was but a short time after the settlement of the strike of April, 1902, that trouble was brewing again. First there came friction over giving instruction to learners and over signing "student cards." With a view to prevent the company, in case of a strike, from filling its cars with new men, the union had supported a municipal ordinance requiring seven days' apprenticeship for a learner, and in the same spirit tried to limit the number taught. Apparently incited by the easy victory their first efforts had won, the leaders took advantage of what seemed a trifling irritation, to foster further discontent, and started an agitation for higher wages. The abolition of the bonus system and the strict adherence to the ten-hour day, together with the effort of the company to equalize the runs, all of which was strictly in accord with the agreement reached after the strike, tended to cut down the earnings of many of the older men and made them, at least, dissatisfied with the new rates. In fact, the men requested the company to remove the ten-hour limit so that they might take longer runs and increase their earnings.

In March, 1903, after prolonged agitation, the leaders presented new demands to the company. These were long and complex, and unfortunately were never very clearly stated in their details. They may, however, be considered as two, for all the others were matters of easy adjustment on friendly conference. These two were: (1) recognition of the union, to the extent of the employment of none but union men; the discharge of men expelled from the union and the right of the union to review

[1] Campaign slogan of Adolph Sutro when running for mayor of San Francisco on a strictly anti-railroad issue, and the title chosen by Frank Norris for the novel in which he portrays this hostile feeling toward the company.

the causes of discharge, in each case when men were discharged by the company; (2) that the rate of wages, originally 22½ cents per hour and raised to 25 cents per hour after the strike, should be further raised to $3 per day for a six- to nine-hour day, with 45 cents per hour for overtime and 50 cents per hour for instructing learners. The company early in the dispute granted a limited recognition of the union, and that was cleared from the "demands," so that the real issue was, practically, the increase in the rates of wages.

A strike was threatened. The political conditions were the same as at the time of the previous strike, and the temper of the union men in the city much the same. But public opinion was different. This time it was singularly quiescent, and what little expression there was, was in favor of the company, in view of the large increase demanded and the short time that had elapsed since the strike. The new demands came at a rather inopportune time for the company, as the syndicate which financed the consolidation was just then engaged in trying to float a large issue of bonds. The upshot was an agreement to arbitrate. It was agreed that Mr. Patrick Calhoun, representing the syndicate, and Mr. W. D. Mahon, the president of the Amalgamated Association of Street Railway Employees of America, of which the local union is a division, should endeavor to adjust the differences, and, if they failed, should appoint an umpire, with whom they should constitute a board of arbitration. The settlement when reached should take effect as of May 1, 1903, and continue in force for one year.

The two gentlemen named came to San Francisco in June, and after prolonged conferences succeeded in adjusting all the differences except those relating to the rates of wages, which included the hours of labor also. Compromise seemed out of the question, as the men preferred, in the words of one of the leaders, "a hundred-to-one shot at $3 per day to any slight advance." Finally the two adjusters requested Mr. Oscar S. Straus, of New York, second vice-chairman of the National Civic Federation, and member of the Board of Arbitration of the Hague, to serve as third arbitrator. As Mr. Straus could not

come to California and the board could not sit as a whole to hear the evidence, it was agreed to take the testimony before a commissioner, after the manner of some law courts, and to send it to the arbitrators in New York, where the case was argued orally in October.

The case thus brought to arbitration was regarded as one of considerable importance. It affected directly some two thousand street-car men and some 45 million dollars of capital, and might affect by force of example all the street-car interests in the country. Both sides took plenty of time and spared no pains or money in the preparation of the evidence and of the argument. The actual taking of testimony in the hearing before the commissioner in San Francisco occupied six weeks, a very large amount of written evidence was produced, and documentary exhibits of all sorts were collected.[2] The issue was clear and the grounds upon which each side stood unequivocal. The question presented to the arbitrator was at once the most difficult and the most vital, that can come up between labor and capital, namely a fair wage. The men argued that when the cost of living advanced their wages should advance, if the employer could afford to pay more. The company argued that the men should be paid what they earn, as determined by the supply and demand for labor, under assumed conditions of free competition, in the market in which they sell their labor, irrespective of whether the company is making money or what the cost of living may be. While each side consistently denied the propriety of the method of its opponent for determining what constitutes a fair wage, yet each consented, for the purpose of the argument, to consider the proposed rate from the point of view of its opponent, as well as from its own. Both sides became so much interested in establishing a proper basis for determining a fair wage that they looked for some expression on this point, from the arbitrator, with an interest second only to that taken in the

[2] At one point of the proceedings the attorney for the men actually suggested that a cable car should be introduced as an exhibit in order to show the intricacy of its mechanism and to prove that the man who handled or repaired such a car could not be called "unskilled."

rate of wages to be determined. It was more than an idle statement when the attorney for the men said in his argument that "arbitration is itself on trial in this case." Unfortunately the award was a compromise satisfactory to no one. It gave no explanation of the reasoning by which a decision was reached, and showed in several instances a misunderstanding of the circumstances surrounding the dispute. The latter fault may, perhaps, be attributed to the fact that the arbitrator was not familiar with the economic conditions in California, which are peculiar. But it is certain that the opinion is less interesting than the arguments.

We may review the arguments and the award under four heads: (1) the cost of living; (2) the ability of the company to pay higher wages; (3) the labor market; and (4) the hours of labor.

I. THE COST OF LIVING.

It was urged by the men as a ground for an increase in their wages that the cost of living had advanced so rapidly, after the settlement of the strike in April, 1902, that, even with the very substantial increase in wages obtained at that time, they were unable to live as well as they had before. They claimed that there had been an advance of between 20 and 30 per cent. in the cost of living, and supported this by a mass of unorganized testimony as to the cost of various commodities, and by the opinions of a multitude of witnesses. Much of this testimony was vague and indefinite and impossible of verification. People in general have, of course, recognized the rapid advance in prices since the Spanish war, and it seems difficult for those not given to careful discrimination to understand that, as shown by the United States Department of Labor index, Dun's index, or any other systematic review of prices, the rise occurred mainly in the three years 1898, 1899, and 1900, and was practically over in 1902. During the first half of 1903 the decline which has since set in was not apparent. Recent advances in the price of bread, milk, and meats were taken as typical of all commodities and tended to confirm the erroneous impression. The men who testified to such a remarkable increase, in so short a time, simply voiced what was the

general belief. As the men had received all they asked in 1902, they were debarred from showing that the increase prior to that date had been more rapid than the advance in their wages.

The company replied to this that the cost of living had no bearing on the question of what the wage rate ought to be, the latter being, the company claimed, determined by supply and demand in the labor market, under assumed conditions of free competition, and any other method would, in its result, contravene great economic forces and bring ruin. But it argued further that even if the cost of living were taken into consideration, there had been no such advance as the men claimed, in the short period of one year, and that whatever advance there had been was more than discounted by the increase in wages already granted. In support of this contention the company then presented statistics compiled from the San Francisco market reports, published regularly in the newspapers, covering, separately, both retail and wholesale prices. These had been reduced to simple and to weighted index numbers by several of the usual methods, which all showed substantially the same result, namely, that, although there had been violent fluctuations in the prices of some commodities, and a number of rather large fluctuations from month to month, such as are usually produced by the changes of the season, the entire cost of living, including food, clothing, rent, fuel, and light, showed no general tendency upward or downward during the one year. A comparison of the first four months of 1902 with the first four months of 1903, including only those of the above items that had advanced and omitting those which had declined, showed an increase of less than 3 per cent.

Mr. Straus in his award makes no distinct reference to the main issue in this connection, namely, as to whether the cost of living has any bearing in determining what the wage rate ought to be. He simply repudiates "the ruling that wages, like" the price of "any other commodity, is regulated by the demand and the supply" of labor,[3] and advances the opinion "that, in our

[3] It is interesting to compare the phraseology of this statement with that of one of the witnesses for the union, who helped to lay the theoretical basis for

day, with more humane considerations of this question, there has come about a decided departure from this rigid and often inhumane method of regulating wages." But he fails to state what these humane considerations are or the direction of the "departure." However, he obviously frames his award on the basis of his estimate of the advance in the cost of living, so that it is probably safe to infer that he believes it pertinent, and that an increase in the cost of living is a fair ground for an advance in the rates of wages, even when, as in this instance, the increase cannot be shifted to the consumer by raising prices or fares. It would be interesting, although possibly futile, to speculate on the deductions to be drawn in case of a decline in the cost of living. In this respect the award goes very much farther than the considerations of the cost of living by the Anthracite Coal Strike Commission, for the ability of the car men to maintain the American standard of living, in San Francisco, on the $700 to $900 they earn each year, was not denied.

Having tacitly assumed that the cost of living should regulate the wage rate, the arbitrator seems to have been much more concerned with the method of determining whether, and how much, the cost of living had increased. He rejected both the lines of evidence submitted, stating simply that the testimony offered by the men was "lacking in definiteness, and, in part, in reliability;" while the basis of that offered by the company was "not entirely satisfactory or convincing." His reason for the last statement is not given, but it may be safely assumed that he was influenced by the argument of the counsel that the retail prices used should have been those of the small, local groceries and markets in the suburbs, where it was claimed that the men trade, and not those of the large central markets where competition would tend to keep the prices at a minimum; or he may have thought that the lists of commodities used, namely, those included in the Department of Labor index number, and in the investigation for the Anthracite Coal Strike Commission, were not strictly representa-

the union argument, on this point. He said: "I have always held and contended that the matter of wages cannot be fixed and determined like the prices of commodities, according to the law of supply and demand, but must be regulated by what it costs a man to live."

tive of the living of the car men in San Francisco. The method of measuring fluctuations in the cost of living is a point which may be passed over in this brief review, for it is one on which the student of economics is not particularly interested in having an arbitrator's views, as it is simply a question of scientific method and already fairly well settled. Having rejected all the estimates submitted by the disputants, the umpire cites the fact that rents had advanced, in some instances 10 per cent., and that the Anthracite Coal Strike Commission found an advance in 1902 over 1901 and other earlier years, and concludes, apparently, that the truth lay somewhere between the two claims, for he gave some of the men an advance, amounting to 5 per cent. for men who had been in the employ of the company less than two years in April, 1903, and 10 per cent for those longer in the service; thus making three grades, 25 cents per hour, for those engaged since April, and 26¼ cents and 27½ cents per hour, respectively, for the two classes named.

The establishment of a graduated scale is considered by the union leaders a victory for the company. It appears that it is an advantage to a street-car company to have in its service men who have been there many years and who have proved their faithfulness and attachment to the work, and it is quite common to advance such men in wages or to distinguish them in some way by marks on their uniform. Out of 370 companies investigated, 198 had rates of pay graduated according to the term of service. It is the theory of the union leaders that all the men, after they have once learned the business, perform the same service and should be paid alike. In his eagerness to prove that street-car men should not be classed with common or unskilled labor, and given the low wages of such classes, the attorney for the men had laid great stress on the point that the men were worth more to the company as they gained in experience, and this seems to have been the view of the arbitrator.

II. THE ABILITY OF THE COMPANY TO PAY.

The ability of the company to pay higher wages came into the controversy at first as a side issue, and then developed into

one of the most important questions that came before the board. The men, when stating that they could not live as well on the new wage as they had lived before, had argued that their demand was reasonable because the company could pay it without difficulty. The counsel for the car men developed this into an argument that the company was making large profits and ought in equity to share this jointly produced wealth with its employees. The company replied that its profits or its losses had no bearing on the question of what constituted a fair wage, asserted that the demand was socialistic, and that it expected to pay fair wages even if it were on the verge of bankruptcy, and no more than fair wages even if its income were very much larger than it was; and, while still denying the pertinency of the inquiry, injected the statement that its profits were not large, not amounting to more than a reasonable return upon the capital actually spent on the purchase of the properties. But it positively refused to show its books, to submit any figures, or to allow its officers to testify on this point. This refusal caused many a bitter controversy and much abuse of witnesses, and it was finally referred to the arbitrators to decide whether this line of inquiry should be pursued. The extreme doctrine that the rate of wages should be regulated by the rate of profits was apparently rejected, for it was the unanimous decision of the commission that testimony on this point would not be considered, "because no question has arisen as to the company's lack of ability to pay its wage, or any wage this commission should decide."

III. THE LABOR MARKET.

The company asserted that the wage rate ought to be fixed solely with reference to what could be learned of the prevailing conditions of the supply and demand of labor, assuming conditions of free competition among the men; and that any other method of fixing wages would so contravene economic principles as to defeat its own end. It then proceeded to show by various methods what the market rate was. It demonstrated that it was paying the highest rates paid to street-car men for similar services anywhere in the country, except in a few mining towns in Montana where the conditions were exceptional. This was

admitted by the men, who denied, however, that it had any bearing on the market rate, asserting that the San Francisco labor market was peculiar and that wages are, and always have been, higher in San Francisco than in other cities of like size. To meet this the company stated that it could, if the union left it free hand, obtain all the men it needed for street-car service in San Francisco, at the existing rates. To prove this it cited the large number of applications for work received by it daily, and brought in the managers of employment agencies who testified that the supply was ample. It also cited various circulars and other publications issued by the Labor Council and other labor organizations in San Francisco, intended to offset the work of the California Promotion Committee (which is endeavoring to bring people to California) by asserting that there was a plethora of laborers here already. The men retorted that this sort of competition could not be considered in the face of their strong union, and that the evidence applied only to unskilled labor, while street-car work required experienced, steady, and responsible men, even if their occupation could not be called skilled. And they claimed further that there were not enough competent men outside of their own ranks to fill the cars. The company then said that it could draw upon the labor supply in other centers and import men trained to the street-car work from there. It claimed that the men would gladly come from the low wages, and severe weather conditions under which their work was rendered in eastern cities, to the high wages and the mild, equable climate of San Francisco. On this point they cited eastern employment agencies and street-car managers in other cities. This led naturally to a discussion of the relative cost of living in San Francisco and in other cities, and whether such men could afford to come. The company engaged a firm of certified public accountants in New York to collect statistics in fourteen cities in different parts of the country, and showed that the cost of living was less in San Francisco than in any other of these cities, where lower wages are paid to car men for similar, but essentially harder, service. As this could not be successfully controverted, the car men's attorney replied with the threat, above cited, that the union, assisted by all the other unions in San Francisco, would see to it that the company

did not import non-union men to displace the union men now on the cars. In short, he claimed that the union had a monopoly and that the principle of competition did not apply. San Francisco was, according to this view, to be regarded as a closed market for labor, and conditions elsewhere should not be considered. The merits of these interesting and conflicting claims were not considered in the award of the commission, which contented itself with the simple commonplace "that, generally speaking, the rate of wages is somewhat higher in the city of San Francisco than in other cities of equal size throughout the United States;" although the bearing of this on the matters in controversy when the wages already paid were, according to the commission's own finding, "from 10 per cent. to 15 per cent. higher than those paid by similar railways in other cities," is not very clear.

IV. THE HOURS OF LABOR.

The demand of the men was for $3 per day on regular runs. A regular run, which should constitute a full day's work, was defined as one which could be completed in not less than six nor more than nine hours. The question of hours was thus inextricably entangled with the question of wages. The men had no intention of asking for reduced hours, unless their regular earnings were at the same time maintained or increased. This involved, of necessity, a change from a rate per hour to a rate per day. It was, therefore, not altogether pertinent to discuss the hours of labor apart from the rate of wages. But the board took them up separately and decided that, in view of the practice in street-car service elsewhere and the exceptionally mild climate of San Francisco, a little less than eleven hours per day was not too long on the car, and the prevailing schedule of hours was left unchanged.[4]

SUMMARY AND COMMENT.

The theory of the men seemed to be that the market rate of wages which might prevail, under assumed conditions of free

[4] There were other questions connected with the hours of labor which were largely of a practical nature, such as the relative merits of a continuous nine-hour day and of one broken for meals; or the possibility of keeping the cars moving twenty to twenty-four hours per day when two full turns on the car, or two regular runs, amounted to only eighteen hours, without compelling the company to employ many men on short hours. These were not ruled upon by the umpire.

competition, should be regarded in all adjustments of the wages of union men, if regarded at all, as the impassable minimum, and that if the cost of living were abnormally high, or the company unusually prosperous, higher rates should be paid. In the view of the company this demand of the union was of the nature of an artificial restraint of trade interfering with the natural and healthful forces of free competition, and that a fair day's pay for a given service comes as close as possible to what the service would be worth at the market rate if there were no union. The theory of the award is not very clear, but seems to be that "humane considerations" dictate the payment of higher than the market rate when the cost of living is high. It is much to be regretted that the reasons for this attitude were not presented, and that the umpire decided that he would "not enter into the economic speculations that this question gives rise to, as it can serve no purpose here." *Per contra,* if by "economic speculations" he meant the definition of the terms "just" and "equitable" in his statement. "I have endeavored to be just and equitable to both sides," it would have served a very useful purpose.

Cases like this where the issue is clear, and is vital, going to the very root of the greatest of the unsettled questions in the relations of union labor to capital, afford a splendid opportunity for arbitrators to do something that shall outlast their day and generation. Whenever a dispute between wage-earners and their employers, involving solely the adjustment of wages and not complicated by the petty details of temporary "irritation," is submitted to arbitration, it clearly becomes necessary to determine what the principles are by which the members of the board or commission ought to be guided in reaching a decision. No award by a board of arbitration in such a case can ever be thoroughly satisfactory unless it is supported by reasons which appeal to the sense of justice of all concerned; and every such board is in duty bound to formulate such general principles in support of its award. Under such circumstances the expression which too often mars such awards, "I have tried to be fair to both sides," is, when unsupported, utterly meaningless and serves

but to hide the true reasons for the award. No court of law decides an important case without citing the law. These labor disputes are not, and in the nature of things cannot be, referred to the ordinary courts of justice, because the "rights" involved have never been formulated in a manner to obtain that general recognition which is essential to "law." The chief appeal is made, not to accepted tenets, like principles of law, but to certain original crude conceptions of justice and right similar to those which, Woolsey said, "the Creator of man has implanted in his nature, in order to protect the individual members of human society from one another, and to make just society possible." Many of our most universally accepted conceptions of rights, of justice, and of equity were at first crude conceptions as vague and ill-defined as is our present-day conception of what we are pleased to call a "fair wage." They crystallized but slowly into those grand conventions which, as Woolsey, in more teleological language, correctly says, make "just society possible," by proving their worth and their utility to society, and are now written large in our legal and moral codes.

The appeal being to such ill-defined ideals, arbitrators cannot well afford to refuse to define what they mean by "fair." The amount of the award concerns the present alone; the "how" of it may make for the progress of the race. Arbitrators sit as judges in labor disputes, and at present they make their "law" as they go along. They have few precedents to guide them, because precedents are still in the making. But principles formulated in important labor disputes, when they are clearly and forcefully expressed, and ring true to manhood, will naturally become precedents, and be quoted and appealed to in subsequent cases much as legal opinions formulated by the courts are referred to and relied upon. Is it altogether fanciful to suppose that there may thus grow up, in a manner not unlike the growth of our common law, or perhaps even more closely analogous to the growth of international law, a body of rules or principles having much the force of law in the future adjustments of wages?

CARL C. PLEHN.

UNIVERSITY OF CALIFORNIA.

THE RELATIVE IMPORTANCE OF OUR FOREIGN TRADE.

NOTWITHSTANDING some minor shocks in financial circles, this country still finds itself in a state of self-satisfaction. Since the business revival in 1898 the greatest pains have been taken by our newspapers, our magazines, our reviews, and our orators to trace each step of our country's progress and make it known to the people with all the dispatch permitted by telegraph and telephone. Probably the bad effects on the public of this systematic boom predominate over the good.

The good side of jingo writing is that after all it gives us news, partial though it be, and we are permitted to draw the inference that there are in existence other nations. Now, this is a most important point, and one that will be extensively noticed in these remarks. On the other hand, the bad in the vulgar gospel of success that has recently been so pressed upon the community is, in the first place, that it is one-sided, stating all of the favorable facts and none of the unfavorable ones; and in the second, that this one-sidedness leads us to exaggerate our importance in the industrial world and lulls us into a false sense of security. I shall attempt, therefore, to state more impartially than usual the facts concerning the great industrial progress that has been made undoubtedly and most fortunately by this country, along with others, in recent years.

The usual items of economic progress are included in statements of wealth, population, production, and commerce. Taking the period just before the recent boom, we find that, notwithstanding the severe crisis of 1893 and the depression which accompanied it, the wealth of the United States was estimated in 1888 as 61 billion dollars and in 1896 as 81.7 billions, an increase of 33 per cent. For the same period the wealth of twenty-two principal countries of the world increased only from 316.5 billions to 351.9 billions, or 11 per cent. In the same period the wealth of England increased from 54 billions to 59 billions, that of France

from 44 billions to 48 billions, and that of Germany from 38 billions to 40 billions. While, therefore, the increase of the wealth of the United States was three times as fast as that of the world and more than three times that of the oldest countries of Europe, it remains to inquire whether in all the other elements of civilization — in arts, science, and literature — our progress was equally great.

What we seek is progress. This self-adulation, so far as it is posited upon increase in wealth and trade, in its excesses implies a belief that progress consists in these things alone. We may grant the need of a physical basis for the superstructure of progress, but we must positively affirm that this basis is vain if it remains only a basis and bears no superstructure ultimately. France has increased her so-called wealth and commerce less than some other even of the old nations in recent years; and yet perhaps we would concede France to be the most advanced of nations. Increase of wealth is but a part of the story of progress: if ours is rapid, that is because we had a small beginning; if it is great, that is because a new world was given, and an old world sent to it men and ideas; but it cannot be permanently the greatest, because other countries, like Russia, China, and the British empire, are larger, and combinations still larger may be formed, and because there is other wealth that transcends economic wealth.

But still the business of this paper is with this part-progress known as "economic." Within this narrow field we have to determine the space occupied by our own country, important indeed, though limited. While our object is to estimate its present position, we are often compelled to glance at the past for at least a partial explanation. Estimates of wealth are arbitrary and uncertain. Wealth is only truly economic in so far as it may be regarded as income-giving capital. The various business enterprises of a country are therefore what we must look to for income. In reviewing in a summary way the income-giving power of our country's business, the grand division of commerce attracts our attention as at once important and worth while, since it offers the most available statistics.

From 1720 to 1889 the world's commerce increased forty

times, and from 1800 to 1889, eleven times. Since the share of the United States in the world's commerce was only 10 per cent. so late as 1889, it would seem that it could have had little share in the previous enormous increase. Indeed, if we take the period from 1800 to 1889, we find that, while the commerce of Great Britain, France, and Germany has increased, roughly, twelve times, that of the United States has increased but seven times, or hardly more than half as fast. In fact, if we extend the period and take in a round hundred years from 1801 to 1901, and compare the foreign commerce of the United States with that of England, we find that, while a century ago the foreign commerce of the United States was 62 per cent. of that of the United Kingdom, now, in 1901, it is but 54 per cent.

The reason for this relative decline of commerce is of course not to be found in the decline of our shipping, to be treated hereafter, for our foreign commerce counts just as much when freighted under foreign flags as under our own. It was, however, the enormous expansion of our shipping before the peace of Amiens (1802), and again after the renewal of the continental wars in 1804, that contributed to the early and almost premature development of our commerce. It was a commerce not so much stimulated by our own products as by our transshipments of foreign goods; so that this distant country, far from the centers of civilization, was made the base of the world's commercial operations. In 1806 the foreign exports of the United States amounted to one and a half times the domestic exports; in 1902 the foreign exports of the United States amounted to but one fifty-second part of the domestic exports. While it is a pleasant thing that our commerce is now fed from domestic sources, it is worth noting that the process has been one of changing the composition of our exports rather than that of more rapid commercial expansion here than abroad.

After all, the fundamental phenomenon in the progress of the United States has been the rapid increase of population. For commerce to increase as fast as population among a people long poor and engaged in clearing a primæval wilderness would indeed hardly be expected. Accordingly, we find that the commerce of

Europe increased from 1850 to 1894 six times as fast as the population, which of course is not true of the United States, the population of which has increased much more rapidly than that of Europe. Comparing the United States with the United Kingdom, the population of the United States from 1820 to 1890 increased seven times, while that of England increased two and a half times. Thus the population of the United States increased over three times as fast as that of England, while its commerce only increased half as fast.

So far we have carried the comparison only up to about the year 1890. But we are chiefly concerned with the period since 1890, and for that period we find our commercial relations with the rest of the world quite reversed. It still holds true, indeed, for the long period of our national history that we cannot show an increase of commerce so great as that of some foreign countries; but for the last decade of the nineteenth century we did for a while most emphatically reverse the situation.

In the first place, let us take the period just covering the crisis years, 1890, 1893, 1896, and including a world-wide depression: we find that the foreign commerce of the United States actually increased by 100 million dollars, while that of France and England decreased by a like amount. However, in this period one country surpassed the United States: the commerce of Germany increased by 150 millions, or one-half more than that of the United States. Europe recuperated from the general depression earlier than the United States; this gave her purchasing power and credit; but the United States, suffering from the recent crisis, was glad to sell at very low prices. Accordingly, we find the increase in commerce to consist in exports of manufactures which rose from 138 millions in 1889 and 156 millions in 1893 to 228 millions in 1896 and 433.8 millions in 1900.

As these remarkable figures indicate, the really great things in our commercial expansion occurred in the five short years from 1895 to 1900. Exports of manufactures rose in this short period from 183.5 millions to 433.8 millions, or 237 per cent. Now, comparing this increase in commerce with that of the world for about the same period — a period truly epoch-making

in the world's commerce, and the one in which the United States for the first time stands boldly forth as leader and exemplar — we find that in 1901 the world's commerce had risen to 20.5 billions, an increase in five years of hardly 12 per cent. Probably a large part of this increase was due to rise in prices. In the same period the foreign commerce of the United States had risen to 2.2 billions, an increase of 33 per cent.; that of England had risen to 3.9 billions, an increase of 14 per cent.; and that of Germany and France show about the same increase.

The remarkable point, undoubtedly, in our recent commercial expansion has been the increase in our exports. Between 1896 and 1901 the total foreign trade of the United States rose from 1.6 billions to 2.2 billions, an increase, as already remarked, of 33 1-3 per cent. Meanwhile the exports rose from 883 millions to 1.4 billions, or 66 per cent.; and 1896 was not a bad year, the only year in which it had been previously surpassed in figures being the great wheat-export year ending July 1, 1892, when our exports passed the billion-dollar mark.

In the recent period of rising exports the gain has been largely due, as already remarked, to our manufactures. In 1890 our manufactures formed but 17.8 per cent of our exports. But from 1895 the proportion of manufactured exports rose rapidly. Even in 1899 when our agricultural exports were so large, owing to the large crop of 1898, the exports of manufactures were rising still more rapidly, reaching 29 per cent. of the total exports; and in 1900 they rose to 31.6 per cent. Owing to the rise in the prices of manufactures, foreign purchasing has been discouraged, and the proportion of manufactures exported has not kept quite so high, but the more recent falling off is not alarming, the proportion still reaching 29.7 per cent. for 1902.

"In the eight years since 1895 the increase in the exportation of manufactures has been nearly three times as much as in the fifteen years immediately prior to 1895."

The inspired and officious press items that emanated from government statistical bureaus used to lay great stress on our surplus of exports over imports. This sweet but siren song is not so often heard, and it is well that it is not. The idea that we

can sell continually without buying is not a wholesome one to preach; and that we are beginning to collect our foreign credits in form of merchandise is not a bad sign. For 1901 this surplus was 664 million dollars. By July 1, 1903, it had declined to 384 millions. We have to go back to 1897 to find a smaller surplus; in fact, if we consider only our trade with England — a country which it was supposed by the extremists that we had so far distanced as to render it wholly a buyer and no longer a seller — it turns out for 1903 that the excess of our exports to it over our imports from it is no larger than it was in the year 1892 — a year in which "political orators thrilled the country with pictures of England's deluge of merchandise, emptied on our shores and wholly destructive of our domestic industry."[1]

However, we have as yet witnessed no diminution in our total trade — that is, in the sum of our exports and imports, and that is the chief thing. In principle it matters little whether at a given moment there be an excess of imports, provided they be capital goods and not luxuries. The total trade of 1903 is 135 millions larger than that of 1900, when it was larger than in any previous year. And it argues against real crisis conditions that exports were nearly as large as in 1901, when they were larger than in any previous year, being only 60 millions less, or $1,419,991,290. But, on the other hand, imports of clocks and watches, diamonds, laces, and spirits have again for the first time risen to the extravagant figures of 1893.

It is a remarkable fact, however, and one that testifies to the wealth of Europe, that one-half of the manufactures of the United States go to Europe. It is also remarkable that our exportation of manufactures to Europe has increased nearly threefold from 1892 to 1902. Of our 403.5 millions of exports of manufactures in 1902 one-half went to Europe, about 100 millions to Canada and to the rest of North America, while the larger part of the remaining 100 millions went to Asia and South America. The increase of our trade with Asia since the close of the Spanish war has been remarkable. In 1898 we exported 9.1 millions worth to China, and in 1902 we exported 23.1 millions.

[1] *Evening Post*, August 1, 1903.

Our increase of trade with Japan, however, is due to an export of raw material: the Japanese import increasing quantities of American cotton, which they prefer to the Indian product, to feed their growing cotton manufactures.

Our domestic exchanges are thirteen times as great as our foreign commerce. Nor, as has been shown, has our foreign commerce grown so fast as that of foreign countries; only the last half-dozen years have shown a tendency to improvement in this respect. Consequently, the interest in our foreign commerce is rather in its quality than its quantity. The make-up of our exports and imports is an index of what is going on in trade circles at home. In 1820 manufactures formed 71.4 per cent. of our imports; in 1902, 39 per cent. In 1820 manufactures formed 7.5 per cent. of our exports, and in 1902, as already stated, they formed 29.8 per cent.

It was to be expected that we would import less manufactures and export more. Otherwise we should hardly have been a progressive people. Whether this progress has been the work of the protective policy is not now under discussion, and it is very difficult either to establish or deny. It still holds true, however, that manufactures play a larger part in imports than in exports, even though copper and perhaps other articles are not counted in manufactures, *when imported*.

Among our exports of manufactures the most important is iron. In 1890 we exported 25.5 million dollars' worth and in 1900, 121.9 millions' worth. In 1902 this item was reduced to 98.5 millions. It is often said that this reduction is due "to excessive home demand for iron and steel manufactures." While this statement is true, it is but a part of the truth. Prices were reduced in Europe, especially in Germany, due to the commercial depression there, while they were raised so high in the United States by speculative inflation as to preclude exportation. As a matter of fact, the importation of manufactures of iron into the United States more than doubled in the four years from 1898 to 1902 (from 12.6 to 27.1 millions). The largest previous importation was 28.9 millions in 1892.

As to manufactured exports again, our other chief items are

petroleum, copper, cotton, boots and shoes, and agricultural implements. Mineral-oil exports increased from 44 millions in 1890 to 68 millions in 1900 (but 66 millions in 1902). Copper exports rose from 2.3 millions in 1890 to 57 millions in 1900. The increased market for copper was found in Germany, where the electrical industries made such rapid strides in those years; and, notwithstanding the crisis in that country, and the temporary decline of our copper exports, resulting in almost a panic in the Boston copper market, we have in Germany a permanent customer for our copper. The Germans freely acknowledge that they cannot get along without American copper.

There was also some importation of copper, rising from 3 million dollars in 1898 to 10.9 millions in 1902. Notice that for purpose of exportation, copper, ingots, plates, and bars are classed as manufactures, while when the statistical writers in the employ of the government speak of the importation of ingots, plates and bars, they speak of them as manufacturer's materials. Now, a protective tariff is meant to foster the production and exportation of manufactures, while the official doctrine is gaining ground that it is consistent with an increased inflow of materials, raw or partly manufactured. In the case of copper, then, the official argument is that it is a manufacture when it is exported, but a material when it is imported; and to the tariff the praise is given in both cases!

The next export in order of importance among manufactures is cotton, which has risen from 10 million dollars in 1890 to over 30 millions in 1902. This increase is partly due to the trade with China, which rose from 3.8 millions in 1892 to 14.3 millions in 1902. Our exports of boots and shoes, a most ancient American industry, have grown enormously. In 1895 we exported only 822 pairs; in 1900, 3 million pairs; in 1902, 3.9 million pairs. A traveler in Europe sees American shoes of good grades on exhibition in shop windows everywhere. Of agricultural implements we exported in 1890 3¾ millions' worth, and in 1902 16¾ millions' worth. The most of this is made up of mowers, reapers, plows, and cultivators. Our threshing machines are less sought abroad. One reason is that France, the greatest

wheat producer next to the United States, and perhaps Russia, is successful in the manufacture of threshing machines, while she has been unable to manufacture the other agricultural implements of equal excellence with the Americans.

If we intend to study the probable course of our future trade relations, it will be interesting to prepare ourselves by noting the different parts of the world where our customers live. In other words, we have to note the destination of our exports, and what is the character of the trade with our different customers. Of our total exports in the year 1902, 72.9 per cent. went to Europe, 14.7 per cent. to North America, 2.7 per cent. to South America, 4.6 per cent. to Asia, 2.4 per cent. to Oceania, and 2.4 per cent. to Africa. Of course, it is but natural that the bulk of our trade should be with the wealthiest region — Europe. We cannot sell where purchasing power is lacking. What, however, do we send to Europe and the other continents? The idle talk about the American invasion of Europe implies that we send things similar to those produced there; but statistics tell a very different story, for manufactures form only 20 per cent. of our exports to Europe, quite 52 per cent. of our exports to North America, 68 per cent. of our exports to Asia, and fully 80 per cent. of our exports to Oceania. So far the rule holds, then, that we send a smaller proportion of manufactured exports to the older countries which manufacture for themselves.

This rule does not hold for South America and Africa quite so strongly, for but 62 per cent. of exports to South America are manufactured, and 33 per cent. of our exports to Africa. These countries are not more civilized than Asia and Oceania, but exhibit a comparative preference for European goods — a preference due to traditional tastes and connections. South America has no sentimental nor historical affinities with North America, except in the dreadful examples of rebellion, revolt, and civil war. South Americans are Latin peoples; they dislike the United States and its people; they regarded with horror the victories of our arms over Spain in 1898, and only by poverty were restrained from joining hands with the Spaniards, even at the expense of Cuban independence. Their mother-country is the European

continent, whose merchants have always been among them. They are as near to Europe geographically as to the United States. Of our exports of manufactures to Europe about one-half go to the United Kingdom. The hard times on the continent since 1900 have caused a falling off in our exports of manufactures thither. For instance, the electrical crisis in Germany has caused a falling off in our copper exports to that country from 10.9 million dollars to 6.8 millions (1902).

Notwithstanding the notable increase in our exports of manufactures, our importation of manufacturers' materials exceeds slightly our exports of manufactures. In other words, we may, if we choose, look upon our exports of manufactures as a means of paying for our imports of manufacturers' materials, which are to be used largely in producing commodities for home consumption. Thus we see again that our foreign commerce is but an incident in the total production and exchange of the country.

It still holds true that our chief class of exports is agricultural. 57 per cent. We are therefore far from reaching the state of a non-agricultural, exclusively manufacturing nation. While America's exports of manufactures are about 30 per cent. of her total exports, England's amount to about 85 per cent.

The colossal fact in British economics is the shipping industry and carrying trade, which equal those of the rest of the world combined. The transportation interests of the United States are not less important. That they are on land and not on the sea does not lessen their productivity. The railroads of the United States are nearly equal in mileage to those of the rest of the world. Our railroads therefore may be fairly set over against England's merchant marine; but really our railroads are a much greater item of national strength, for they operate wholly within our own territory, and carry our own wealth exclusively, while England's ships navigate the open seas as the public carriers of foreigners. The more railroads there are, the greater are the regions open to agriculture, mining, and population, and the wider are the markets. Our railroad building has been more phenomenal than that of any other country.

The older countries should naturally have provided themselves

first with the improved transportation. They had the population and the products, and would seem to have needed it most. But their capital was engaged in other methods; they were already interested in great systems of national wagon-roads, and cheap transportation suddenly introduced would derange vested interests. Moreover, Europe was most convenient for sea commerce. The new and sparsely populated country, on the other hand, offered a free field for enterprise, and the railroad became, not, as in Europe, a means of revolutionizing industry, but a means of developing a new country, where even decent wagon-roads were lacking. However, at the very first Europe did take the lead in railroad building.

From 1870 to 1880 Europe and the United States each added 48 thousand miles, leaving Europe ahead in 1880 with 101.7 thousand miles, the United States having but 93.6 thousand miles. But Russia, the great grain producer, increased its lines only from 7 thousand to 14 thousand miles. In the decade from 1880 to 1890 Russia and India made but small extensions of their railway systems. But both of those countries are supplied with river and ocean navigation facilities, and we are not surprised to find India entering into active competition with the American Northwest in the first part of the decade, and Russia in the latter part. Then Argentina also entered the world-market suddenly and vigorously.

From 1880 to 1890 the United States had increased its lines from 93.2 thousand to 166.7 thousand miles, or 7 thousand miles a year. After 1880 Europe added to its mileage hardly more rapidly than before, and by 1888 had increased to only 130 thousand, and the United States was already far ahead. By 1900 the United States had increased its mileage to 194 thousand, and by 1902 to 202,471 miles. By 1897 Europe had increased its lines to 161.2 thousand miles. At that time the United States was still 21.4 thousand miles ahead. At the same date, while Europe had 161.2 thousand miles, all America had 232 thousand miles, and the world 402.2 thousand miles. It will thus be seen that the whole world had little more than twice as much mileage as the United States alone. This certainly is a fine showing for the

United States. Notwithstanding all the financial disappointments which have been connected with railroad development in this country, it can be said in general that the American railroads are not only incomparably more extensive than those of any other country, but also unsurpassed in efficiency, although probably some features of the best European lines are superior.

As to shipping, it appears that Americans have ground for condolence rather than congratulation from the mercantile point of view. It is true that our total tonnage is, next to England's, the largest (5.2 million tons compared with 9.6), but it is almost entirely devoted to domestic commerce.

As to shipbuilding, in 1900 but one steel steamer was built in the United States for foreign trade. The zenith of American shipbuilding was reached shortly before the Civil War. We have protected the construction of American ships excessively, but have not protected their operation. Experience proves that we cannot successfully protect the construction without protecting the operation. In order to sell ships to an American marine we must first have the marine. Our treaty relations with foreign countries at the beginning of the nineteenth century permitted tariff and tonnage discriminations against foreign bottoms. This policy was inherited by the new republic from the old régime and was practiced with great success up to 1820. After 1820 our superiority in wooden construction made all protection unnecessary; but when, after 1860, we needed protection for our metal-shipping industries, we seemed to be unable to revive the discrimination against foreign ships. In fact, discriminative duties have become obsolete and discriminating tonnage- and port-dues are not favored by modern treaties. May we infer that protection to shipbuilding is obsolete also? In any case, protection must be thoroughgoing or it is not protection.

We need five million tons of shipping to carry on our foreign trade. We have, however, only five million tons altogether, and that is restricted to our own waters and domestic commerce. At the rate of only 29 thousand tons built in 1900, we could supply but a very small part of the up-keep of this tonnage from our own shipyards. In 1899 the United States built only 193 steel

steamers, with a tonnage of 237,379 tons. The same year England built 567 steel steamers, with a tonnage of 1,341,425 tons. From 1890 to 1900 the tonnage entering our own ports increased 53 per cent. In that decade the world built 12 million tons of ocean-going steamers, England built 9.7 million tons, and the United States built 206.7 thousand tons!

Of course, it is not necessary that we do our own carrying trade. The argument is perfectly correct that we cannot be expected to supply our own wants at home, and have a commerce besides. Anyhow, shipping is not commerce, but is merely a branch of industry, one phase of the industry of transportation. But upon those persons who think that we ought to supply our own wants wholly from domestic production and carry on a big trade besides (a problem which students have always looked upon as of the boot-strap order) it is worth while to impress a few of the things in which we are not ahead of all the rest of the world. In this connection it is worth noting that our great port of New York is suffering a decline. Its exports of the great staples have fallen off considerably. Comparing the periods 1873-77 and 1894-98, we find that, whereas in the former period New York exported 64.9 per cent. of our flour, wheat, and corn, in the latter it exported only 40 per cent. The same comparison for Philadelphia shows also a slight falling off (from 12 to 10.6 per cent.). It is true that in the same period Boston, Baltimore, Norfolk, and Newport News, as well as the Canadian ports, have made great gain.

New York's proud position as the great port of the country was largely due to the bold construction of the Erie Canal in 1825. Notwithstanding that this canal has been enlarged at different times, it has proved inadequate. The proportion of the staples coming to New York by canal fell from 26.3 per cent. of the Atlantic exports to 7.7 per cent. in the same period, 1877-98. After careful study of the situation, the legislature of New York has resolved to expend 100 million dollars in the construction of a new canal which shall double the present depth of six or seven feet and allow the passage of vessels of 1,000 tons, instead of the present canal boats of 200 tons.

While, however, the city of New York is struggling to regain its position as the great port for exportation of our cereals, it has become perhaps the greatest financial center of the world. It has loaned money to foreign governments and institutions, its gold reserves are twice those of the Bank of England and nearly equal to the famous treasure of the Bank of France, and its deposits have risen from 442 million dollars in 1889 to 963 millions last February (1903). This increase in deposits is much greater than the increase in money value of products of the country. Again, the increase in money value of products is doubtless far greater than the increase in the number and weight of products. The increase in financial transactions therefore exaggerates greatly the increase in production, and this exaggeration itself is a great danger to progress and prosperity.

In the height of the European crisis of 1901 appeal was made to this country for funds, and met with ready response. For the first time America loaned to Europe on a large scale, and in transactions purely financial, not mercantile. The exaggeration of jingoism immediately heralded loudly what was called the transfer of the money center of the world to New York. That we had been definitely received into the great financial group of countries was unquestionable; but the cooler heads knew that we could not always be financial lenders, while the more skeptical doubted whether, on the whole balance, we were at any time at all on the creditor side. By 1902, a year later, our deep indebtedness to Europe again was a financial commonplace; and in the decisive stock slump of the past summer it is European buying that has kept our securities from falling lower than they have, while European loans were all that held the crisis off during the winter and spring of 1903.

Already in the fall of 1902 our bank over-expansion had become matter of comment in semi-official circles. Comptroller Ridgeley said at New Orleans at the American Bankers Association, November 11, 1902:

> The clearing transactions have increased from 54 billion dollars in 1897 to 114 billion dollars in 1901, an increase of 60 billions. That is, they have more than doubled. . . . . The percentage of legal reserve to deposits in the

reserve cities required to hold 25 per cent. has fallen from 32.08 per cent. in 1896 to 24.21 per cent. in 1902, and at the last call for report of condition not one of the central reserve cities and only seven out of the thirty reserve cities held the full legal reserve.

The expansion continued unchecked all last spring.[2] American credit is dangerously inflated. The wild stock-watering that has been going on in the last few years and the rise in prices have led to a bank expansion which is, perhaps, as great as any that has ever been witnessed in this country, and it must be that the responsibilities of finance are in unusually strong hands, and that the industry of the country is extraordinarily well organized, if we can escape a general financial crisis or can confine to financial circles the crisis that has occurred.

We are the wealthiest nation — a good thing if we know how to use wealth; otherwise a calamity. Wealth implies nowadays much knowledge and technical skill, and those attainments of themselves denote some steps in advance in the essentials of human progress; but technical knowledge and skill are not to be the final flower and product.

Our foreign commerce was at one period our most important industry; today it is comparatively unimportant, having grown little in the last hundred years relatively to that of other countries, and still less relatively to our increase of population. Little Holland, which has but one two hundred and thirty-fourth of the area of the United States, has a foreign commerce equal to 67 per cent. of that of the United States. The enormous increase, however, in our domestic commerce is commensurate with our growth in wealth and with the extension of the vast transportation system within our own domain and almost wholly at the service of our own commerce; moreover, the extension of our domestic shipping on inland waters has made us the second nation in water transportation, although our ocean-going shipping is insignificant. Domestic shipping is as exclusively devoted to domestic commerce as is our railway system.

During the last few years, however, an unusual activity has been manifested in our foreign commerce; and it has expanded

[2] See *Monthly Summary*, June, 1903, p. 4506.

more rapidly than that of other countries. There was room for expansion, and it is to be hoped that the movement is not yet at an end. On the other hand, one of the phases of this expansion that attracts most attention is at an end — the remarkable increase of the surplus of exports over imports. That this surplus has returned to normal proportions without a corresponding decrease of total trade is matter for congratulation; and yet we cannot rest in the assurance that foreign trade may not again recede; stagnation in home industry, a period of depression, would surely affect it. On the other hand, it may be said with truth that whenever our foreign trade has gained in volume — and it has steadily, though slowly, gained from early times — there has never been permanent or prolonged retrogression.

Undoubtedly the late period of unusual exports of manufactures to Europe denoted a very sharp competition. The issue was whether or not certain products, some of them staples and some specialties, were to be permanently supplied by the United States, thus forcing foreign manufactures to change their activity into other lines or to transfer their workshops to this side of the Atlantic. Such competition is quite unavoidable. It does not prove that we are permanently to win in every case; much less that the possibly excluded competitor will not find some other and more profitable investment. Such a result would be as injurious to us as to the foreign country, for it would deprive us of a customer. The ups and downs of business, occurring in different countries at different times, cause a relative variation of prices in different countries, which affords a temporary advantage in selling now to one country and now to another, entirely apart from the permanent economies of production.

Europe still distrusts our financial stability. But, financial power surely comes with surplus products and multiplied exchanges. We can mingle in European finance only so far as we either have or expect to have a foreign trade, for foreign trade credits are the basis of foreign financial operations or the result of them; and thus the increase of our total foreign trade has a wide international bearing.

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AMERICAN AND EUROPEAN HIGH-SPEED TRAINS.

I.

MUCH has been written on the relative cost of travel on American and European railways, but, strange to say, very little has been published, of a definite nature, on the service rendered by the railways in return for the fares collected. The frequency, the punctuality, and the expedition of the service have received but scant attention.

The dearth of information on these points is not difficult of explanation. The work involved in the compilation of sufficient and accurate data, adequately to show the character of the service rendered, is so extensive and exacting as to discourage all but those ready to devote a great amount of time and patience to the collection of the facts as well as to their preparation for presentation.[1]

Twenty years ago E. Foxwell[2] made an extended investigation into the speed of British express trains, and in the following year H. B. Willock[3] computed the speed of the express trains of Great Britain in 1871 and compared the results he obtained with those secured by Mr. Foxwell, thus showing the progress that had been made during the interval from 1871 to 1883.

[1] To the person whose acquaintance with railway time-tables is confined to the condensed schedules of through trains this statement may not appeal with much force. But let such a person compute the journey and running speeds of the trains between two cities no more remote from each other than New York and Boston, where most of the trains run over the lines of but a single company, and his conception of the pains and labor involved in getting from the local time-tables an accurate statement of the distances traveled by different trains and the number of station stops, and the time thus lost, by the trains between a sufficient number of cities to show the character of the service of a country, will undergo a sweeping modification.

[2] For the results of MR. FOXWELL'S labors see "English Express Trains: Their Average Speed, etc.; with Notes on Gradients, Long Runs, etc.," *Journal of the Royal Statistical Society*, Vol. XLVI, pp. 517 ff.

[3] H. B. WILLOCK, "English Express Trains in 1871; and a Comparison between Them and Those of 1883," *ibid.*, Vol. XLVII, pp. 259 ff.

Since the early eighties until recently nothing of extended scope on train speeds has been published. In 1901 Mr. W. A. Schulze[4] presented tables which purported to show the speed of the express trains of America and of the principal countries of Europe. His work was, however, performed with such strong pro-German bias that the results he obtained have but slight value.[5] On comparing the movement of the trains of the different countries he arrived at the astonishing conclusion that the trains of Germany average better in point of speed than those of any other country.

II.

The present paper undertakes three somewhat independent things: the speed of the most famous railway trains of the world will be shown; the train service between the principal cities of the United States will be contrasted with the train service between the principal cities of the German Empire; and finally a reply will be made to Mr. Schulze's last discussion of European and American high-speed trains.

Unusual interest attaches to the speed of the world's famous trains because these trains are looked upon as showing the standard of excellence prevailing in the country through which they run. This generally accepted view rests on a secure foundation, but of course it must not be understood that in every instance the famous trains are the fastest trains regardless of all circumstances. There are certain considerations which must always be kept in mind in discussing the speed of trains and chief among these is the matter of distance.

Distance affects speed in at least two ways. Travel between remote points is not so heavy as between near-by points of equal importance, and therefore there is not the same demand or reward for high speed. Long stretches of track devoid of sharp

[4] "Die Fahrgeschwindigkeit der Schnellzüge auf den Haupteisenbahnen in Europa," *Archiv für Eisenbahnwesen*, 1901, pp. 124 ff.; and "Die Fahrgeschwindigkeit der amerikanischen Eisenbahnen," *ibid.*, pp. 782 ff.

[5] A criticism by the present writer, of Mr. Schulze's tables is found in this JOURNAL, Vol X, pp. 361 ff., and a rejoinder by MR. SCHULZE in the *Archiv für Eisenbahnwesen*, 1902, pp. 1244 ff.

curves, free from mountain ranges to be climbed, wide rivers to be crossed, often ferried, and large cities which must be slowly traversed, are rare, and it is therefore generally much more difficult, from the physical point of view, to maintain a high speed over a great distance.

Because of the obstacles which usually intervene and prevent the running of trains over great distances at the highest speed, the long-distance train — even though it be the best of its kind and justly famous — may not bear comparison with a short-distance train not so well known. For this reason I have introduced trains which run shorter distances, even if they are not so widely known, in order to show the service of the country under consideration with greater accuracy.

What has been said on the importance of giving due weight to the matter of distance in discussions of train speed will appear and be emphasized after the tables which will be introduced have been examined. It will be noted that as the distances increase the average speed usually diminishes, especially when the trains of any country which may be selected are contrasted with one another.

In showing the speed of the trains which, for their respective countries, indicate the accepted standard of excellence, a basis is presented, although it is but a narrow and unsatisfactory one, for judging the merits of the train service of the United States and of the German Empire, which will be shown at some length.

Before the tables are submitted, the sources of information drawn on, the significance of the terms employed, and the manner in which the speeds were computed may be given.

The sources of information were as follows: *Official Guide of the Railways and Steam Navigation Lines of the United States,* May, 1903; *Reichs-Kursbuch,* May, 1903; *Guide officiel des voyageurs sur tous les chemins de fer français,* May, 1903; Bradshaw's *General Railway and Steam Navigation Guide for Great Britain and Ireland,* February, 1903; *Orario ufficiale delle strade ferrate del Regno d'Italia,* February, 1903; for Spain the *Guia general de ferrocarriles,* January, 1903; and *Conducteur*—

Fahrpläne der österreichischen und ungarischen Eisenbahn-, Post- und Dampfschiff-Course, February, 1903.[6]

By "journey-time" is meant the total time elapsing from the moment of departure of the train from the initial station to the moment it comes to a stop at its final destination. By "running-time" is meant the journey-time minus the time lost in station stops. "Journey-speed" denotes the average number of miles per hour, stoppages included, by which a train advances on its journey. By "running-speed" is meant the average number of miles per hour run by the train while it is actually in motion from station to station, *i. e.,* the average speed obtained by deducting station stops.

To get the aggregate time lost in station stops, in all cases where the schedule gave merely the time of arrival at an intermediate station, or merely the time of departure, one minute was allowed for the stop, and one minute was also allowed where the schedule gave the same time for arrival and departure.[7]

In ranking trains, although it has not been customary so to regard it, journey-speed should be deemed of greater importance than running-speed. This is true because the reaching of his final destination is the consummation the traveler most desires and constantly has in view. Rapid running between stations associated with lounging at stations does not bring him any faster to the goal he desires than more moderate but more continuous running does, while it considerably increases the dangers of his journey.

In the table on pp. 40, 41, the speed of the world's most famous trains is given. Originally the plan was to show the average journey- and running-speed of these trains for their entire

[6] A comparison of the full schedules of the guides for February of Great Britain, Austria-Hungary, and Italy, and for January of Spain, with the abridged tables for these countries found in the *Reichs-Kursbuch* for May, showed no changes in the schedules of the trains which will find a place in the tables of this article, and it was therefore assumed that the schedules of January and February, 1903, were in force in May, 1903.

[7] For the trains of this country this, of course, seldom gives the actual running time, because many of the schedules in the *Official Guide* are more or less abridged, and because of the numerous grade crossings which still exist and frequently necessitate a full stop.

journey, and this only. But later it was thought best to depart somewhat from this scheme and thereby prevent misconceptions which would later have to be corrected. Where trains pass through more than one country their speed is shown by countries. This was done in order that the good service of one country may not suffer because of the poor service of its neighbors.

It will be noted that the journey of a number of the trains, particularly those of Great Britain, have been cut short, and that the speed of the French trains is given for their full journeys and for parts of them as well. This was done to show the speed of the French trains over the stretches of track where the fastest running is done and to permit comparisons with the other trains of the table on equal terms. The speed of the trains between Philadelphia (Camden) and Atlantic City is given for May, 1903, and October, 1903, but naturally, when comparisons are made, the speed in May should be used. The speed in October is given so that these trains may be seen at their best. It will be noted that the speed of the "Méditerranée Express" on its run from Paris to Calais is also reported twice. This train has an emergency schedule which is faster than its regular, but the latter is, of course, to be used for comparative purposes.[8]

In giving the names of the trains the more prosaic terms employed by the railway officials are adopted rather than the more or less fanciful expressions, such as the "Flying Scotchman," "Flying Cornishman," "Atlantic City Flyer," used by the public to designate their favorite train from London to Scotland, from London to the southwest of England, and between Philadelphia and Atlantic City.

[8] Sometimes the "Méditerranée Express" arrives from the south late, and by arrangement the boat is held at Calais up to a certain time, and the train is pressed forward from Paris on this special but fixed schedule. The second statement, which shows the speed of this express when it runs on its regular schedule, is, of course, the one to be compared with the other trains, for it is customary for trains to make up time when their connections are late. For example, the record of the Atlantic City Express of the Reading Railway during the month of August, 1898, which happens to be at hand, shows that the average running-speed of this train fell below seventy miles per hour only three times during the entire month, the train exceeding its schedule time because of the lateness of the ferry. It is to be noted that, in addition to the emergency and regular schedules, the entire run of the "Méditerranée Express" is given.

III.

Mention was made at the beginning of this paper of Mr. Schulze's articles on the speed of European and American trains. In the second of these articles Mr. Schulze contrasted the speed of German and American trains, much to the disadvantage of the latter.

Referring to his table showing the speed of American trains he said:

> A comparison of the table just discussed, showing American train speeds, with the table appearing on pp. 127 ff. of the *Archiv für Eisenbahnwesen* of 1901, giving the average speed of the express trains of Germany, will show, if the fast trains between Philadelphia and Atlantic City, which are run under special conditions, be dropped out of consideration, not only that equally high average speeds are reached in Germany, when the service is considered as a whole and in a large way *(im grossen Ganzen)*, but even higher averages are attained than in America.[9]
>
> According to my tables, an average speed in excess of sixty-five kilometers per hour is attained by only twenty-six trains in America, while this speed is reached or exceeded by thirty-six trains of Germany.[10]

After reviewing at length the article by the present writer in this JOURNAL of June, 1902, in which many serious errors of fact and method were pointed out in his articles on the speed of American and German trains, Mr. Schulze dramatically declared[11] that he was and still is of the opinion that the decisive superiority of the German train service was demonstrated by his tables.

Further discussion of Mr. Schulze's contention that, when considered in a large way, German train service appears to better advantage than American will be reserved until after tables showing the passenger train service of the two countries on an extensive scale have been presented. In the tables Mr. Schulze introduced in support of his contention that the train service of Germany is better than that of the United States he gave what he declared to be the running speed of but forty-three American trains[12] and that of but forty-six German trains.

[9] *Archiv für Eisenbahnwesen*, 1901, p. 796. [10] *Ibid.*

[11] Die Fahrgeschwindigkeit der Schnellzüge auf amerikanischen und deutschen Eisenbahnen," *Archiv für Eisenbahnwesen*, 1902, p. 1257.

[12] In his tables he gave the speed of forty-three American trains, but, in

JOURNEY- AND RUNNING-SPEE

Train	Journey
Atlantic City Express,[1] via Reading Railway	Atlantic City to Camden
Atlantic City Express,[1] via Pennsylvania Railroad	Atlantic City to Camden
Atlantic City Express,[2] via Reading Railway	Camden to Atlantic City
Atlantic City Express,[2] via Pennsylvania Railroad	Camden to Atlantic City
Méditerranée Express,[3] via Nord Railway	Paris to Calais
Méditerranée Express, via Nord Railway	Paris to Calais
Empire State Express, via New York Central Railway	New York to Buffalo
Edinburgh Express, via Great Northern Railway	London to Edinburgh
Hamburg Express	Berlin to Hamburg
Edinburgh Express, via London & North-Western Railway	London to Edinburgh
Plymouth Express, via Great Western Railway	London to Plymouth
Twentieth Century Limited, via N. Y. C. and L. S. Railways	New York to Chicago
Plymouth Express, via London & South-Western Railway	London to Plymouth
Méditerranée Express, via Nord and P. L. & M. Railways	Calais to Vintimille
Nord Express—whole journey	Ostend to St. Petersburg
In Belgium	Ostend to Herbesthal
In Germany	Herbesthal to Eydtkuhnen
In Russia	Eydtkuhnen to St. Petersburg
Sud Express—whole journey	Paris to Madrid
In France—Orléans and Midi Railways	Paris to Hendaye
In Spain	Hendaye to Madrid
Ostend-Wein-Budapest Express—whole journey	Ostend to Vienna
In Belgium	Ostend to Herbesthal
In Germany	Herbesthal to Passau
In Austria	Passau to Vienna
Nord-Süd (Brenner) Express—whole journey	Berlin to Milan
In Germany	Berlin to Kufstein
In Austria and Italy	Kufstein to Milan
California Limited, via Santa Fé Railway	Chicago to San Francisco (Port Richmond
Overland Limited, via N.-W., U. P., and S. P. Railways	Chicago to San Francisco (Oakland)
Orient Express—whole journey	Paris to Constantinople
In France	Paris to D.-Avricourt
In Germany	D.-Avricourt to Salzburg
In Austria-Hungary	Salzburg to Belgrade
In Servia, Bulgaria, and Turkey	Belgrade to Constantinople

[1] In October, 1903.

[2] In May, 1903.

NING-SPEEDS OF FAMOUS TRAINS.

	Station Stops		Journey-Time		Running-Time		Distance (Miles)	Miles per Hour	
	Number	Minutes	Hours	Minutes	Hours	Minutes		Journey-Speed	Running-Speed
.....	0	0	0	49	0	49	55.50	67.96	67.96
.....	0	0	0	52	0	52	58.00	66.92	66.92
.....	0	0	0	50	0	50	55.50	66.60	66.60
.....	0	0	0	54	0	54	58.00	64.44	64.44
.....	1	4	3	10	3	6	185.14	58.46	59.72
.....	1	4	3	22	3	18	185.14	55.08	56.10
.....	4	10	8	15	8	5	439.52	53.27	54.40
.....	3	16	7	45	7	29	395.00	50.96	52.78
.....	1	4	3	27	3	23	177.69	51.50	52.51
.....	3	15	8	0	7	45	400.00	50.00	51.61
.....	2	20	5	10	4	50	246.00	47.61	50.89
.....	11	29	20	0	19	31	962.49	48.12	49.31
.....	3	13	5	6	4	53	230.75	45.24	47.25
.....	20	118	21	15	19	17	892.86	42.01	46.30
.....	34	232	45	18	41	26	1599.35	35.30	38.60
.....	3	22	4	22	4	0	164.39	37.64	41.09
.....	10	98	22	41	21	3	879.26	38.76	41.77
urg	10	83	17	46	17	23	555.69	31.27	31.96
.....	46	171	26	49	23	58	903.99	33.70	38.49
.....	10	43	10	39	9	56	510.08	47.89	51.34
.....	35	127	16	9	14	2	393.90	24.39	28.06
.....	23	116	23	39	21	43	822.16	34.76	37.85
.....	3	23	4	22	3	59	164.39	37.64	41.26
.....	14	52	13	42	12	50	474.48	34.63	36.97
.....	4	11	5	5	4	54	183.28	36.05	37.40
.....	13	71	22	40	21	29	782.65	34.52	36.43
.....	5	28	11	49	11	21	468.27	39.62	41.25
.....	7	37	10	45	10	8	314.37	29.24	31.02
(Port Richmond)	39	133	78	20	76	7	2569.00	32.79	33.75
(Oakland).....	44	162	71	37	68	55	2314.90	32.32	33.58
.....	52	229	61	36	57	47	1931.99	31.36	33.43
.....	6	17	5	42	5	25	255.35	44.79	47.14
.....	9	31	10	44	10	13	409.80	38.17	40.05
.....	17	81	17	6	25	45	608.25	35.57	38.61
e	17	75	27	39	26	24	658.57	23.81	24.94

[3] Emergency schedule.

To obtain that broader view which Mr. Schulze declares to be favorable to the German service, both the journey-speed and running-speed[13] have been computed of all the trains in one direction between the chief ten cities of the United States, after omitting San Francisco because of its great remoteness, and between the chief ten cities of Germany.[14] These cities, if located in a line, would give nine groups of trains for each country. But as they are actually situated, they give twenty-four groups of American and twenty-five groups of German trains.

Tables compiled on this basis — to be sure, a somewhat arbitrary one — it was believed would have much greater value than tables compiled with no thought of comparison in view, as apparently Mr. Schulze's were. The temptation to split up the journeys of fast trains in many segments and calling each a distinct train, and the temptation to include only such parts of the train's journey as would show a high average speed, which proved so alluring that Mr. Schulze could not resist them while dealing with German trains, were removed.

In computing the speed of the trains, the journey from what seemed to be the principal station of the city of origin to the principal station of the city of destination was included, where a train after running over a part of its journey divided and formed two trains, only the speed of the faster, which was assumed to be the main part of the train, was computed when the two parts ran over the same track; and where two trains running over the same track combined, only the time of the faster section was computed with that of the common train. The sources of information used were the *Official Guide of the Railways and Steam Navigation Lines of the United States*, of May, 1903, and the *Reichs-Kursbuch* of May, 1903.

making his comparisons, dropped from consideration, for reasons not at all sufficient and which will be discussed later, the fast trains between Philadelphia and Atlantic City.

[13] The method of computing speed described on p. 37 was again followed.

[14] The American cities selected were, New York, Chicago, Philadelphia, St. Louis, Boston, Baltimore, Cleveland, Buffalo, Cincinnati, and Pittsburg. The German cities selected were Berlin, Hamburg, Munich, Leipsic, Breslau, Dresden, Cologne, Frankfort-on-Main, Nuremberg; and Hanover.

AMERICAN TRAINS.[1]

GROUP 1.

From New York city to Boston — via N. Y., N. H. & H. R. R. (Shore Line).

TRAIN NUMBER	DISTANCE (Miles)	STATION-STOPS		JOURNEY-TIME		RUNNING-TIME		MILES PER HOUR	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
34	232.2	4	12	5	0	4	48	46.44	48.38
24	232.2	4	12	5	0	4	48	46.44	48.38
36	232.2	9	21	5	58	5	37	38.92	41.34
52	232.2	9	22	6	0	5	38	38.70	41.22
44	232.2	6	19	6	0	5	41	38.70	40.85
26	232.2	12	29	6	28	5	59	36.56	38.79
2	232.2	4	24	6	27	6	3	36.00	38.38
21[2]	232.2	8	18	6	31	6	13	35.61	37.33
61[2]	227.7	9	40	6	50	6	10	33.34	36.91
4	232.2	13	32	6	55	6	23	33.57	36.37

From New York city to Boston — via N. Y., N. H. & H. and B. & A. R. Rs. (Springfield Line).

238	234.7	8	17	5	40	5	23	41.42	43.60
268	234.7	7	18	6	0	5	42	39.12	41.18
222	234.7	14	28	6	30	6	2	36.11	38.69
44	234.7	16	54	7	0	6	6	33.53	38.48
36	234.7	15	113	8	1	6	8	29.28	38.27
26	234.7	18	36	6	53	6	17	34.10	37.36
12	234.7	53	134	9	0	6	46	26.08	34.69
320	234.7	11	20	7	15	6	55	32.38	33.94
208	234.7	39	113	9	0	7	7	26.08	32.99

From New York city to Boston — via N. Y.. N. H. & H. R. R. (Hartford Line).

118	226.6	17	24	6	0	5	36	37.77	40.47
126	226.6	14	21	6	0	5	39	37.77	40.11

GROUP 2.

From Boston to Buffalo — via B. & A. and N. Y. C. R. Rs.

15	498.6	8	30	12	30	12	0	39.89	41.55
17	498.6	7	34	13	0	12	26	38.36	40.11
29	498.6	12	42	13	25	12	43	37.18	39.23
23	498.6	15	55	13	45	12	50	36.26	38.86
37	498.6	23	72	16	0	14	48	31.16	33.69

[1] A summary showing the average speed of all the trains of each of the groups of American trains can be found on p. 66.

[2] The time of departure of these trains for Boston varies with the arrival of the boat from Jersey City, so the trip in the opposite direction is here given.

AMERICAN TRAINS.—*Continued.*

From Boston to Buffalo — via Fitchburg and W. S. R. Rs.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
1	480.7	15	32	12	50	12	18	37.47	39.08
19	480.7	14	36	13	36	13	0	35.34	36.97
3	480.7	18	38	14	5	13	27	34.14	35.73

Group 3.

From New York city (Jersey City) to Philadelphia — via Pennsylvania R. R.

85	89.4	2	2	1	47	1	45	50.13	51.08
59	88	0	0	1	45	1	45	50.28	50.28
87	89.4	2	2	1	55	1	49	48.32	49.20
83	89.4	2	2	1	51	1	49	48.32	49.20
67	89.4	1	1	1	52	1	51	47.89	48.32
51	89.4	1	1	1	52	1	51	47.89	48.32
81	89.4	3	3	1	57	1	54	45.84	47.05
45	89.4	1	1	1	55	1	54	46.64	47.05
97	89.4	1	1	1	56	1	55	46.24	46.64
73	89.4	3	3	1	58	1	55	45.45	46.63
49	89.4	1	1	1	57	1	56	45.84	46.23
7	89.4	0	0	1	57	1	57	45.84	45.84
57	89.4	3	3	2	0	1	57	44.70	45.84
19	89.4	0	0	1	59	1	59	45.07	45.07
5	89.4	0	0	1	59	1	59	45.07	45.07
1	89.4	2	2	2	2	2	0	43.96	44.70
63	89.4	0	0	2	2	2	2	43.96	43.96
71	89.4	11	11	2	15	2	4	39.73	43.25
31	89.4	4	4	2	8	2	4	41.90	43.24
69	89.4	2	2	2	7	2	5	42.23	42.91
65	89.4	3	3	2	9	2	6	41.58	42.57
21	89.4	0	0	2	7	2	7	42.23	42.23
79	89.4	5	5	2	12	2	7	40.63	42.23
23	89.4	5	5	2	15	2	10	39.73	41.26
9	89.4	2	2	2	15	2	13	39.73	40.33
43	89.4	9	9	2	24	2	15	37.25	39.73
47	89.4	10	10	2	29	2	19	36.00	38.58
3	89.4	5	5	2	24	2	19	37.25	38.58
75	89.4	22	22	2	50	2	28	31.55	36.24
93	89.4	26	26	3	8	2	42	28.53	33.11
89	89.4	17	17	3	5	2	48	28.99	31.92
41	89.4	8	8	3	2	2	54	29.47	30.82

AMERICAN TRAINS.—*Continued.*

From New York city (Jersey City) to Philadelphia — via Royal Blue Line.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
617	90.20	3	3	1	48	1	45	50.11	51.54
603	90.20	4	4	1	49	1	45	49.65	51.54
527	93.20	2	2	1	51	1	49	50.38	51.21
507	93.20	2	2	1	51	1	49	50.38	51.21
621	90.20	3	3	1	49	1	46	49.65	51.05
613	93.20	4	4	1	54	1	50	49.05	50.84
619	90.20	3	3	1	50	1	47	49.20	50.57
509	93.20	1	1	1	52	1	51	49.84	50.38
615	90.20	10	10	2	5	1	55	43.30	47.06
607	90.20	12	12	2	8	1	56	42.27	46.65
501	93.20	2	2	2	4	2	2	45.09	45.84
605	90.20	8	8	2	8	2	0	42.27	45.10
525	93.20	5	5	2	9	2	4	43.35	45.09
517	93.20	6	6	2	11	2	5	42.75	44.74
609	90.20	10	10	2	9	1	59	41.95	44.72
601	90.20	6	6	2	9	2	3	41.95	44.00
611	90.20	13	13	2	19	2	6	38.93	42.95
505	94.50	14	15	2	28	2	13	38.26	42.57
503	93.20	4	4	2	19	2	15	40.17	41.42
547	93.20	3	3	2	21	2	18	39.66	40.52
623	90.20	21	21	2	43	2	22	33.19	38.11
515	93.20	8	15	2	56	2	41	31.81	34.78
103	90.20	43	47	3	37	2	50	24.94	31.83

Group 4.

From Philadelphia to Baltimore — via Pennsylvania R. R.

1	95.8	2	2	1	59	1	57	48.30	49.12
51	95.8	1	1	1	59	1	58	48.30	48.70
7	95.8	1	1	2	1	2	0	47.50	47.90
67	95.8	0	0	2	0	2	0	47.90	47.90
49	95.8	1	1	2	3	2	2	46.73	47.10
59	94.1	0	0	2	0	2	0	47.04	47.04
45	95.8	2	2	2	5	2	3	45.98	46.73
27	95.8	2	2	2	9	2	7	44.55	45.25
35	95.8	1	1	2	11	2	10	43.87	44.21
31	95.8	1	1	2	12	2	11	43.54	43.87
65	95.8	3	3	2	14	2	11	42.89	43.87
57	95.8	5	5	2	19	2	14	41.35	42.88
61	95.8	5	5	2	20	2	15	41.05	42.57
63	95.8	1	1	2	16	2	15	42.26	42.57
69	95.8	1	1	2	21	2	20	40.76	41.05
23	95.8	2	2	2	22	2	20	40.47	41.05
55	95.8	24	24	2	47	2	23	34.41	40.19
47	95.8	14	14	2	37	2	23	36.60	40.19
21	95.8	20	20	2	44	2	24	35.04	39.91
41	95.8	5	5	2	29	2	24	38.57	39.91
3	95.8	19	19	2	48	2	29	34.21	38.57
43	95.8	28	28	3	26	2	58	27.90	32.29
25	95.8	29	29	3	28	2	59	27.63	32.10

AMERICAN TRAINS.—*Continued.*

From Philadelphia to Baltimore — via Royal Blue Line.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
509	95.8	2	2	2	2	2	0	47.11	47.90
507	95.8	2	2	2	2	2	0	47.11	47.90
527	95.8	2	2	2	3	2	1	46.73	47.50
501	95.8	4	4	2	10	2	6	44.21	45.61
505	95.8	4	4	2	12	2	8	43.54	44.90
503	95.8	2	2	2	12	2	10	43.54	44.21
517	95.8	5	5	2	19	2	14	41.35	42.90
525	95.8	4	4	2	24	2	20	39.91	41.05
515	95.8	5	5	2	35	2	30	37.08	38.32
135	95.8	6	6	2	42	2	36	35.48	36.84
123	95.8	37	37	4	10	3	33	22.99	26.98

Group 5.

From New York city to Buffalo — via New York Central R. R.

51	439.52	4	10	8	15	8	5	53.28	54.40
25	438.57	4	12	9	0	8	48	48.73	49.83
41	439.52	7	26	10	10	9	44	43.22	45.17
3	439.52	7	26	10	25	9	59	42.18	44.04
11	439.52	6	20	10	30	10	10	41.86	43.21
19	439.52	5	19	10	30	10	11	41.85	43.17
17	439.52	10	24	11	0	10	36	39.96	41.46
29	439.52	9	25	11	25	11	0	38.49	39.96
33	439.52	5	21	11	25	11	04	38.49	39.70
59	439.52	16	62	12	30	11	28	35.16	38.32
23	439.52	8	27	12	0	11	33	36.63	38.05
73	439.52	12	65	13	05	12	0	33.60	36.63
7	439.52	35	162	14	45	12	03	29.80	36.47
37	439.52	28	65	14	29	13	24	30.35	32.80

From New York city (Hoboken) to Buffalo — via Lackawanna R. R.

3	410	12	20	9	40	9	20	42.19	43.94
15	410	22	30	10	30	10	0	39.05	41.00
5	413	34	42	11	45	11	3	35.14	37.38
9	410	17	25	11	45	11	20	34.89	36.18
7	410	20	28	12	30	12	2	32.80	34.08

From New York city (Jersey City) to Buffalo — via Lehigh Valley R. R.

9	449.8	12	30	11	18	10	48	39.81	41.65
5	445.8	13	36	11	40	11	4	38.20	40.27
3	445.8	16	33	11	50	11	17	37.68	39.52
1	445.8	39	63	12	22	11	19	36.04	39.38

AMERICAN TRAINS.—*Continued.*

From New York city (Jersey City) to Buffalo — via Erie R. R.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
1	425	17	27	10	45	10	18	39.53	41.26
5	425	16	28	11	15	10	47	37.78	39.42
7	425	30	54	13	45	12	51	30.90	33.07
From New York city (Weehawken) to Buffalo — via West Shore R. R.									
1.	428.2	8	20	10	50	10	30	39.54	40.78
19	428.2	9	33	11	40	11	7	36.72	38.53
3	428.2	13	30	12	5	11	35	35.45	36.98
5	428.2	49	81	14	50	13	29	28 87	31.77
Group 6. From Philadelphia to Buffalo — via Pennsylvania and Lackawanna R. Rs.									
554	433.7	27	46	10	49	10	3	40.01	43.15
58	434.0	32	107	12	43	10	56	34.12	39.71
90	434.0	52	135	13	45	11	30	31.56	37.74
From Philadelphia to Buffalo — via Reading and Lehigh Valley.									
311	419.1	38	63	11	28	10	25	36.53	40.22
309	415.1	25	53	11	15	10	22	36.90	40.03
327	415.1	16	49	11	15	10	26	36.90	39.80
323	415.1	31	47	11	20	10	33	36.64	39.35
From Philadelphia to Buffalo — via Pa. R. R. (Harrisburg & Olean).									
7	417.3	12	39	11	10	10	31	37.36	39.67
61	417.3	16	36	11	10	10	34	37.36	39.48
Group 7. From Philadelphia to Pittsburg — via Pennsylvania R. R.									
5	353.7	3	11	8	40	8	29	40.80	41.69
25	353.7	2	10	8	40	8	30	40.80	41.61
7	353.7	3	18	9	10	8	52	38.58	39.88
19	353.7	5	23	9	25	9	2	37.56	39.15
21	353.7	3	13	9	20	9	7	37.89	38.79
15	353.7	20	38	10	15	9	37	34.50	36.77
9	353.7	9	22	10	25	10	3	33.95	35.19
1	353.7	22	60	11	5	10	5	31.91	34.07
13	353.7	105	171	13	25	10	34	26.36	33.47
31	353.7	114	142	13	20	10	58	26.52	32.25
Group 8. From Buffalo to Pittsburg — via Lake Shore and P. & L. E. R. Rs.									
19	260	24	105	8	10	6	25	31.83	42.73
11	260	13	29	7	5	6	36	36.70	39.39
37	260	38	75	8	55	7	40	29.15	33.91

AMERICAN TRAINS.—*Continued.*

From Buffalo to Pittsburg — via Pennsylvania R. R.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
2	207.5	22	49	8	45	7	56	30.91	34.09
4	207.5	17	33	8	45	8	12	30.91	32.98
From Buffalo to Pittsburg — via Buffalo, Rochester & Pittsburg R. R.									
3	284	15	45	9	15	8	30	30.70	33.41
7	284	14	19	9	10	8	51	30.97	32.09
Group 9.									
From Buffalo to Cleveland — via Lake Shore R. R.									
25	182.5	1	3	3	37	3	34	50.46	51.16
43	183.0	4	7	4	10	4	3	43.92	45.18
19	183.0	2	5	4	10	4	5	43.92	44.81
15	183.0	3	6	4	15	4	9	43.05	44.09
11	183.0	4	7	4	25	4	18	41.43	42.55
3	183.0	3	6	4	25	4	19	41.43	42.39
33	183.0	4	7	4	30	4	23	40.66	41.74
23	183.0	8	12	5	0	4	48	36.60	38.13
47	183.0	31	35	5	40	5	5	32.29	36.00
37	183.0	21	25	6	0	5	35	30.50	32.77
From Buffalo to Cleveland — via Nickel Plate R. R.									
3	184	8	8	5	9	5	1	35.72	36.19
1	184	7	7	5	15	5	8	35.04	35.84
5	184	28	28	6	50	6	22	26.92	28.88
From Buffalo to Cleveland — via Erie R. R.									
103	261	26	4′ 54″	12	20	7	26	21.16	35.11
107	261	12	54	8	30	7	36	30.70	34.34
207	261	36	2′ 30″	11	..	8	30	23.72	30.70
Group 10.									
From Buffalo to Chicago — via Michigan Central R. R.									
17	520.2	14	31	12	55	12	24	40.26	41.95
3	535.4	20	37	13	40	13	3	39.17	40.02
23	535.4	33	52	15	35	14	43	34.36	36.37
11	520.2	29	56	15	45	14	49	33.03	35.10

AMERICAN TRAINS.—*Continued.*

From Buffalo to Chicago — via Wabash R. R.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
3	525	16	44	14	15	13	31	36.84	38.83
1	525	24	37	14	30	13	53	36.21	37.82
9	525	26	44	15	20	14	36	34.25	35.96
5	525	28	61	17	0	15	59	30.88	32.85
From Buffalo to Chicago — via Grand Trunk R. R.									
3	551.94	28	66	15	45	14	39	35.04	37.68
7	551.94	27	63	15	45	14	42	35.44	37.54
5	551.94	34	179	19	20	16	21	28.55	33.75
From Buffalo to Chicago — via Erie R. R.									
103	620.0	41	315	22	0	16	45	28.18	37.01
107	620.0	45	68	18	35	17	27	33.36	35.53
Group 11.									
From Buffalo to St. Louis — via Wabash R. R.									
1	741	18	37	18	15	17	38	40.60	42.03
9	741	25	49	18	30	17	41	40.05	41.91
3	741	31	137	24	18	22	1	30.50	33.65
Group 12.									
From Pittsburg to Cleveland — via Pennsylvania R. R. (Through Homewood).									
319	140	6	10	3	30	3	20	40.00	42.00
311	140	6	10	3	30	3	20	40.00	42.00
From Pittsburg to Cleveland — via Pittsburg & Lake Erie and Erie R. Rs.									
17	135	11	15	3	30	3	15	38.57	41.53
25	135	8	12	3	30	3	18	38.57	40.90
7	135	16	51	4	15	3	24	31.76	39.70
23	135	19	23	4	0	3	37	33.75	37.32
21	135	28	239	8	30	4	31	15.88	29.88
From Pittsburg to Cleveland — via Pennsylvania R. R. (Through Alliance).									
303	150	16	27	5	5	4	38	29.50	32.37
307	150	30	55	6	0	5	5	25.00	29.50
301	150	29	43	6	0	5	17	25.00	28.38

AMERICAN TRAINS.—*Continued.*

From Pittsburg to Cleveland — via Baltimore & Ohio R. R.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
9[1]	174	24	39	6	5	5	26	28.60	32.02
47[1]	174	18	100	7	35	5	55	22.94	29.40

Group 13.

From Cleveland to Chicago — via Lake Shore R. R.

25	341.97	4	8	7	15	7	7	47.16	48.04
15	341.97	12	20	8	35	8	15	39.84	41.45
19	357.00	6	14	9	10	8	56	38.94	39.96
3	341.97	12	20	8	55	8	35	38.35	39.84
23	341.97	24	39	10	25	9	46	32.82	35.00
7	357.00	59	106	12	50	11	4	27.81	32.25
37	341.97	37	55	11	50	10	55	28.89	31.32

From Cleveland to Chicago — via C. A. & C. and Ft. Wayne R. Rs.

528 ...	407	24	44	12	5	11	21	33.68	35.77
502	407	29	56	12	35	11	39	32.34	34.93

From Cleveland to Chicago — via Nickle Plate R. R.

3	339	14	18	9	49	9	31	34.53	35.62
1	339	39	43	11	0	10	17	30.81	32.96
5	339	38	47	11	50	11	3	28.64	30.67

From Cleveland to Chicago — via B. & O. R. R.

46	389.7	28	47	12	20	11	33	31.59	33.74
6	389.7	34	52	12	30	11	19	31.18	33.49

Group 14.

From Cleveland to Cincinnati — via Big Four R. R.

19	263.1	4	11	6	5	5	54	43.24	44.59
11	263.1	9	17	6	55	6	38	38.03	39.66
33	263.1	10	23	7	15	6	52	36.28	38.31
25	263.1	19	65	9	20	8	15	28.18	31.89

From Cleveland to Cincinnati — via Erie and C. H. & D. R. Rs.

22	333	35	97	10	30	8	53	31.71	37.50
20	333	48	257	15	55	11	38	20.92	28.63

[1]The data in the *Official Guide* of May for these two trains were incomplete, and were supplemented from the *Guide* of June.

AMERICAN TRAINS.—*Continued.*

From Cleveland to Cincinnati — via Pennsylvania R. R.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
502 ...	290	28	69	9	20	8	11	31.07	35.43
528	290	18	130	11	0	8	50	26.36	32.82

Group 15.

From Cleveland to St. Louis — via Big Four R. R.

19	548	21	49	14	20	13	31	38.23	40.53
43	548	15	38	14	30	13	52	37.79	39.51
11	548	22	48	15	10	14	22	36.13	37.96
35	548	33	75	16	45	15	30	32.71	35.35

From Cleveland to St. Louis — via Pennsylvania R. R.

528	600	28	77	17	50	16	33	33.64	36.25

Group 16.

From Pittsburg to Chicago — via Pennsylvania R. R. (Ft. Wayne).

5	468	7	18	12	40	12	22	36.89	37.83
15	468	20	28	13	5	12	37	35.78	37.08
9	468	29	37	13	45	13	8	34.04	35.64
21	468	13	24	13	35	13	11	34.46	35.51

From Pittsburg to Chicago — via Baltimore & Ohio R. R.

5	488.7	17	25	14	35	14	10	33.52	34.50
47	488.7	39	86	16	20	14	54	29.92	32.80

From Pittsburg to Chicago — via Pennsylvania (Pan Handle).

21	507	35	67	15	50	14	43	32.03	34.44
3	507	57	188	19	10	16	02	26.45	31.63

Group 17.

From Pittsburg to St. Louis — via Pennsylvania R. R. (Pan Handle).

5	635	17	59	17	5	16	6	37.18	39.44
7	623	17	47	16	50	16	3	37.02	38.82
21	635	27	72	17	50	16	38	35.61	38.18

AMERICAN TRAINS.—*Continued.*

From Pittsburg to St. Louis — via P. C. C. & St. L., B. & O., and B. & O. S. W. R. Rs.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min	Hours	Min.	Journey-Speed	Running-Speed
223	697	39	75	21	6	19	51	33.03	35.11
209 ...	697	31	284	24	43	19	59	28.20	34.88

From Pittsburg to St. Louis — via B. & O., and B. & O. S. W. R. Rs.

105	667	36	149	21	35	19	6	30.91	34.92
103	667	37	250	23	58	19	48	27.83	33.69

Group 18.

From Pittsburg to Cincinnati — via P. C. C. & St. L., B. & O., and B. &. O. S. W. R. Rs.

209	355	16	65	10	50	9	45	32.84	36.41
223	355	29	46	12	5	11	19	29.39	31.36

From Pittsburg to Cincinnati — via Pennsylvania R. R. (Pan Handle).

21	313	8	42	9	20	8	38	33.55	36.26
19	313	15	43	9	30	8	47	32.95	35.65
5	313	10	88	10	15	8	47	30.54	35.65

From Pittsburg to Cincinnati — via B. & O. and B. & O. S. W. R. Rs.

103	325	22	41	10	15	9	34	31.71	33.96
105	325	27	51	11	40	10	49	27.84	30.00

Group 19.

From Baltimore to Buffalo — via Pennsylvania R. R.

15	396	12	42	10	48	10	6	36.67	39.21
7	396	12	38	11	5	10	27	35.74	37.89

Group 20.

From Baltimore to Pittsburg — via Baltimore & Ohio R. R.

11	342	5	22	9	15	8	43	36.97	39.23
5	342	13	44	10	8	9	24	33.75	36.38
9	342	16	39	12	30	11	51	27.36	28.86

AMERICAN TRAINS.—*Continued.*

From Baltimore to Pittsburg — via Pennsylvania R. R.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
1	331.9	18	29	9	0	8	31	36.88	38.96
21	331.9	4	24	9	15	8	51	35.88	37.50
15	331.9	15	53	10	3	9	10	33.03	36.19
9	331.9	9	31	10	15	9	44	32.38	34.11

Group 21.

From Baltimore to Cincinnati — via B. & O. and B. & O. S. W. R. Rs.

1	592	19	51	17	55	17	4	33.04	34.69
55	592	29	82	18	35	17	13	31.86	34.38
3	592	22	64	18	35	17	31	31.86	33.79

Group 22.

From Cincinnati to Chicago — via Monon Route.

32	308	30	49	8	40	7	51	35.52	39.24
30	308	19	28	8	20	7	52	36.97	39.18
40	322	37	52	9	25	8	33	34.18	37.66
40	308	36	40	9	0	8	20	34.22	36.97
36	308	28	37	10	38	10	1	28.97	30.73

From Cincinnati to Chicago — via Big Four R. R.

19	305.6	15	21	8	20	7	59	36.69	38.30
11	305.6	15	28	9	0	8	32	33.96	35.80
37	305.6	16	44	10	40	9	56	28.64	30.78

From Cincinnati to Chicago — via Pennsylvania R. R.

19	299	12	20	8	20	8	0	35.89	37.38
11	299	21	41	8	50	8	9	33.86	36.69
1	299	12	65	10	55	9	50	27.38	30.42

Group 23.

From Cincinnati to St. Louis — via B. & O. S. W. R. R.

1	342	10	10	8	25	8	15	40.62	41.45
9	342	9	9	8	41	8	32	39.40	40.09
3	342	14	14	10	28	10	14	32.66	33.43
7	342	75	75	11	36	10	21	29.48	33.04

AMERICAN TRAINS.—*Continued.*

From Cincinnati to St. Louis — via Pennsylvania R. R.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
43	385	19	90	11	25	9	55	33.71	38.81
11	385	52	205	14	42	11	17	26.19	34.13

Group 24.

From Chicago to St. Louis — via Illinois Central R. R.

19	292.96	15	27	8	0	7	32	36.62	38.80
17	292.96	17	29	9	9	8	40	32.02	33.79

From Chicago to St. Louis — via Wabash R. R.

11	286	21	29	8	0	7	32	35.75	38.03
17	286	38	262	12	0	7	38	23.83	37.48
23	286	14	27	8	34	8	7	33.37	35.22
13	286	20	65	10	16	9	11	27.84	31.15

From Chicago to St. Louis — via Chicago & Alton R. R.

3	283.8	12	16	8	0	7	44	35.48	36.71
11	283.8	12	21	8	30	8	9	33.39	34.82
1	283.8	35	39	9	12	8	33	30.85	33.19
9	283.8	33	42	10	16	9	34	27.63	29.66

GERMAN TRAINS.

Group 1.

From Berlin to Hamburg — via Wittenberge.

8	177.69	1	4	3	27	3	23	51.50	52.51
6	177.69	2	6	3	32	3	26	50.28	51.75
14	177.69	1	4	3	36	3	32	49.35	50.28
12	177.69	3	9	3	50	3	41	46.33	48.24
4	177.69	4	11	4	4	3	53	43.69	45.75
10	177.69	21	29	4	53	4	24	36.38	40.38
2	177.69	22	31	5	4	4	33	35.07	39.05
206	177.69	21	31	5	29	4	58	32.40	35.77
202	177.13	30	51	6	36	5	45	26.83	30.80
204	177.13	32	53	6	39	5	46	26.63	30.71

GERMAN TRAINS.—*Continued.*

From Berlin to Hamburg — via Stendal and Uelzen.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
4	188.81	11	29	5	18	4	49	35.62	39.19
202	184.15	30	56	6	26	5	30	28.62	33.48
8	188.81	33	123	7	51	5	48	24.05	32.55
210	184.15	40	82	8	39	7	17	21.28	25.27
224	184.15	41	81	8	0	6	39	23.01	27.69

Group 2.

From Hamburg to Hanover — via Lüneburg and Lehrte.

76	112.02	6	12	2	52	2	40	39.07	42.00
80	112.02	6	11	2	55	2	44	38.40	40.98
74	112.02	5	11	2	59	2	48	37.54	40.00
82	112.02	5	83	4	15	2	52	26.35	39.02
72	112.02	6	14	3	10	2	56	35.36	38.18
784	112.02	20	30	4	10	3	40	26.88	30.55
772	112.02	27	71	5	1	3	50	22.32	29.22
782	112.02	27	49	4	39	3	50	24.09	29.22
774	112.02	27	48	4	52	4	4	23.01	27.54
818	112.02	27	115	6	3	4	8	18.51	27.10

From Hamburg to Hanover — via Bremen.

90	147.25	11	41	4	28	3	47	32.96	38.92
712	147.25	20	28	4	39	4	11	31.66	35.19
704	147.25	23	34	4	49	4	15	30.57	34.64
706	147.25	19	64	5	30	4	26	26.77	33.21
92	147.25	21	92	6	38	5	6	22.19	28.87

Group 3.

From Hamburg to Cologne — via Bremen, Münster, and Düsseldorf.

94	281.88	12	28	7	14	6	46	38.96	41.65
92	281.88	16	62	8	18	7	16	33.96	38.79
96	278.34	14	37	8	2	7	25	34.64	37.52
90	279.70	47	125	10	39	8	34	26.26	32.64
704	278.34	56	221	12	58	9	17	21.46	29.98
706	278.34	59	220	13	32	9	52	20.56	28.20

GERMAN TRAINS.—*Continued.*

GROUP 4.

From Berlin to Hanover — via Magdeburg and Braunschweig.

10	179.49	4	16	4	25	4	9	40.63	43.25
32	190.17	5	22	4	55	4	33	38.67	41.79
44	182.78	22	62	6	13	5	11	29.40	35.26
364	179.49	23	58	6	4	5	6	29.58	35.19
366	179.49	23	58	6	13	5	15	28.87	34.18
400	179.49	25	48	6	36	5	48	27.19	30.94
358	179.49	40	123	8	19	6	16	21.58	28.64
314	179.49	39	100	7	58	6	18	22.53	28.49

From Berlin to Hanover — via Stendal.

TRAIN NUMBER	DISTANCE (Miles)	STATION-STOPS		JOURNEY-TIME		RUNNING-TIME		MILES PER HOUR	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
8	163.27	4	7	3	57	3	50	41.33	42.59
4	163.27	6	9	4	9	4	0	39.34	40.81
16	163.27	5	8	4	9	4	1	39.34	40.64
14	163.27	9	12	4	17	4	5	38.11	39.98
12	163.27	2	6	4	14	4	8	38.56	39.49
6	163.27	9	12	4	32	4	20	36.01	37.67
18	163.27	13	16	4	38	4	22	35.22	37.38
2	163.27	11	19	4	53	4	34	33.43	35.75
208	158.61	29	45	5	58	5	13	26.58	30.40
202	158.61	32	60	6	21	5	21	24.97	29.64
218	158.61	32	113	7	14	5	21	21.92	29.64
204	158.61	32	120	7	25	5	25	21.38	29.28
210	158.61	30	52	6	22	5	30	24.91	28.83
224	158.61	33	58	6	31	5	33	24.33	28.57
206	158.61	32	38	6	20	5	42	25.04	27.82

GROUP 5.

From Hanover to Cologne — via Minden, Hamm, and Dortmund.

1	201.48	5	12	4	53	4	41	41.25	43.02
8	201.48	8	18	5	0	4	42	40.29	42.86
10	201.48	8	22	5	8	4	46	39.24	42.26
4	201.17	11	29	5	19	4	50	37.83	41.62
6	201.48	12	33	5	26	4	53	37.08	41.25
20	196.45	14	29	5	30	5	1	35.71	39.15
14	202.85	17	34	5	48	5	14	34.97	38.76
2	201.48	17	44	5	56	5	12	33.95	38.74
16	205.46	22	157	8	12	5	35	25.05	36.79
136	202.85	43	137	9	6	6	49	22.29	29.75
208	202.85	49	120	9	12	7	12	22.04	28.17
210	202.85	51	136	9	44	7	28	20.84	27.16
202	202.85	51	208	11	5	7	37	18.30	26.63

GERMAN TRAINS.—*Continued.*

From Hanover to Cologne — via Altenbeken, Unna, and Barmen.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
510	193.47	17	32	6	1	5	29	32.15	35.28
508	193.47	36	106	8	12	6	26	23.59	30.07
512	193.47	31	369	12	51	6	42	15.02	28.87
504	193.47	36	211	10	23	6	52	18.63	28.17
502	193.47	46	158	9	54	7	16	19.54	26.62
506	193.47	44	156	10	2	7	26	19.28	26.02

Group 6.

From Berlin to Cologne — via Halle and Cassel.

12	444.71	18	59	11	39	10	40	38.17	41.72
38	415.75	23	121	12	41	10	40	32.79	39.00
42	442.16	45	303	17	18	12	15	25.56	36.09
202	406.31	77	200	16	48	13	28	24.18	30.16

From Berlin to Cologne — via Magdeburg and Hildesheim.

32	357.72	14	35	9	31	8	56	37.58	40.06
38	357.91	61	529	21	17	12	28	16.82	28.70

From Berlin to Cologne — via Magdeburg and Kreiensen.

30	372.45	13	47	10	9	9	22	36.69	39.75
36	336.78	25	81	11	6	9	45	30.34	34.54
34	289.80	41	162	13	15	10	33	21.87	27.47

From Berlin to Cologne — via Magdeburg and Börssum.

38	376.67	61	494	21	17	13	3	17.70	28.86
400	376.67	72	249	17	33	13	24	21.46	28.10

Group 7.

From Hanover to Frankfort — via Göttingen, Cassel, and Marburg.

74	232.61	9	35	6	48	6	13	34.20	37.41
78	232.61	17	37	6	50	6	13	34.04	37.41
70	227.33	14	212	9	37	6	5	23.63	37.36
76	227.33	13	45	6	57	6	12	32.71	36.66
72	227.33	21	82	8	7	6	45	28.00	33.67
882	332.61	33	196	10	28	7	12	22.22	32.30
774	227.33	70	192	12	27	9	15	18.30	24.58
772	227.33	65	186	12	2	8	56	18.89	24.32

GERMAN TRAINS.—*Continued.*

From Hanover to Frankfort — via Lehrte, Elze, Bebra, and Elm.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
82	236.52	20	77	7	57	6	40	29.75	35.47

From Hanover to Frankfort — via Göttingen, Bebra, and Elm.

788	220.49	23	196	9	42	6	26	22.73	34.27
778	220.49	40	143	9	54	7	31	22.27	29.33

Group 8.

From Berlin to Frankfort — via Halle and Elm.

42	374.56	11	28	8	44	8	16	39.79	42.03
6	334.69	13	33	8	34	8	1	39.06	41.74
2	334.69	18	50	9	23	8	33	35.66	39.14
202	334.69	43	175	12	5	9	10	27.69	36.51
4	334.69	30	102	11	3	9	20	30.28	35.86
12	334.69	34	146	11	59	9	33	27.92	35.04
208	334.69	83	298	16	41	11	43	20.16	28.56
204	334.69	91	245	16	25	12	20	20.38	27.13

From Berlin to Frankfort — via Halle and Marburg.

36	359.67	15	111	10	55	9	4	32.94	39.66
12	359.67	15	149	11	55	9	26	30.18	38.12
42	374.33	68	220	15	2	11	22	24.90	32.93

From Berlin to Frankfort — via Magdeburg and Marburg.

44	370.85	17	62	10	40	9	38	34.76	38.49
36	366.50	20	87	11	15	9	48	32.57	37.39
38	384.08	28	188	13	45	10	37	27.93	36.17
400	384.08	46	106	13	35	11	49	28.27	32.50
314	368.12	53	370	18	0	11	50	20.45	31.10
30	366.50	58	299	16	47	11	48	21.83	31.05
316	360.97	93	364	21	17	15	13	16.96	23.72

From Berlin to Frankfort — via Belzig, Nordhausen, and Marburg.

46	354.20	23	84	11	9	9	45	31.76	36.32
634	354.20	96	367	19	34	13	27	18.10	26.33
618	354.20	103	237	19	50	15	53	17.85	22.30

GERMAN TRAINS.—*Continued.*

From Berlin to Frankfort — via Magdeburg, Börssum, and Elm.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
34	356.81	29	104	11	27	9	43	31.16	36.72

Group 9.

From Frankfort to Cologne — via Mayence and Bonn.

53	137.99	3	7	3	28	3	21	39.80	41.19
98	137.99	5	55	4	21	3	26	31.72	40.19
267*a* ...	137.99	13	165	6	28	3	43	21.73	37.12
103	137.99	11	52	4	41	3	49	29.46	36.15
111	137.99	9	43	4	34	3	51	30.21	35.83
253	137.99	22	43	4	48	4	5	28.74	33.79
113	137.99	13	32	4	38	4	6	29.77	33.65
142	137.99	33	178	7	58	5	0	17.31	27.60
271	137.99	20	61	6	14	5	13	22.13	26.44
267	137.99	34	50	6	4	5	14	22.74	26.36
261	137.99	49	123	7	46	5	43	17.76	24.13
257	137.99	49	93	7	24	5	51	18.64	23.58

From Frankfort to Cologne — via Rüdesheim and Coblenz.

67	137.36	6	15	3	57	3	42	34.77	37.12

From Frankfort to Cologne — via Rüdesheim and Neuwied.

51	136.68	10	17	4	2	3	45	33.88	36.44
49	136.68	11	18	4	9	3	51	32.93	35.50
187	136.68	13	25	4	20	3	55	31.54	34.89
55	136.68	13	23	4	22	3	59	31.30	34.31
301	136.68	50	123	7	40	5	37	17.82	24.33
309	136.68	50	80	7	6	5	46	19.25	23.70
311	136.68	50	109	7	42	5	53	17.75	23.22
315	136.68	51	128	8	6	5	58	16.87	22.90
313	136.68	50	83	7	23	6	0	18.51	22.78

From Frankfort to Cologne — via Giessen and Betzdorf.

71	144.51	13	28	4	35	4	7	31.52	35.10
771	144.51	37	220	8	52	5	12	16.29	27.79
77	144.51	34	52	6	18	5	26	22.93	26.59
773	144.51	46	102	7	25	5	43	19.48	25.27
793	144.51	50	78	7	11	5	53	20.11	24.55

GERMAN TRAINS.—*Continued.*

GROUP 10.

From Berlin to Nuremberg — via Halle, Jena, and Probstzella.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
50	292.23	7	14	7	11	6	57	40.70	42.05
40	292.23	7	17	7	37	7	20	38.35	39.87
36	312.73	22	96	10	15	8	39	30.51	36.16

From Berlin to Nuremberg — via Halle, Erfurt, and Coburg.

32	330.44	21	78	10	5	8	47	30.60	37.64

GROUP 11.

From Berlin to Leipsic — via Bitterfeld.

28	107.30	0	0	2	15	2	15	47.69	47.69
22	107.30	2	7	2	27	2	20	43.80	46.05
26	107.30	2	5	2	33	2	28	42.08	43.44
12	107.30	8	84	4	18	2	54	24.95	37.00
24	107.30	6	24	3	20	2	56	32.22	36.62
208	107.30	20	57	3	55	2	58	27.37	36.13
4	107.30	10	24	3	28	3	4	30.92	34.95
232	107.30	27	44	4	14	3	30	25.37	30.65
430	107.30	27	49	4	32	3	43	23.69	28.84
206	107.30	28	44	4	30	3	46	23.84	28.46
204	107.30	28	48	4	41	3	53	22.93	27.65
202	107.30	20	70	5	14	4	4	20.52	26.36

GROUP 12.

From Leipsic to Nuremberg — via Weida and Bamberg.

74	200.67	10	23	5	46	5	23	34.79	37.27
76	200.67	20	85	7	32	6	7	26.63	32.80
370	206.67	54	487	15	42	7	35	13.16	27.25
362	200.67	55	318	13	12	7	54	15.20	25.40

From Leipsic to Nuremberg — via Jena and Bamberg.

14	196.76	7	20	5	47	5	27	34.02	36.10
262	196.76	20	203	9	11	5	48	21.42	33.92
254	196.76	40	173	11	7	8	14	17.69	23.89

GERMAN TRAINS.—*Continued.*

From Leipsic to Nuremberg — via Altenburg and Hof.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
22	205.33	11	22	6	6	5	44	33.65	35.81
26	220.18	14	33	6	46	6	13	34.49	35.41
24	220.18	18	55	7	23	6	28	29.82	34.04
30	220.18	18	58	7	33	6	35	29.16	33.44
34	220.18	28	77	8	30	7	13	25.90	30.50
214	220.18	27	319	12	39	7	20	17.40	30.02
202	220.18	36	202	11	13	7	51	19.62	28.04

Group 13.

From Nuremberg to Munich — via Ingolstadt.

50	123.45	0	0	2	55	2	55	42.28	42.28
102	123.45	3	6	3	9	3	3	39.19	40.48
40	123.45	0	0	3	5	3	5	40.08	40.08
104	123.45	9	19	3	43	3	24	33.19	36.31
112	123.45	7	14	3	49	3	35	32.32	34.48
220	123.45	10	27	4	13	3	46	29.25	32.75
24	123.45	10	50	5	10	4	20	23.88	28.51
206	123.45	29	73	6	30	5	17	18.99	23.38
212	123.45	28	55	7	1	6	6	17.59	20.24
208	123.45	29	142	8	44	6	22	14.14	19.38
204	123.45	29	90	6	50	5	20	18.08	23.16

Group 14.

From Berlin to Dresden — via Jüterbog and Röderau.

54	119.54	6	9	2	58	2	49	40.25	42.39
52	119.54	4	8	2	59	2	51	40.11	41.94
284	119.54	27	43	4	19	3	36	27.67	33.21
286	119.54	30	48	4	59	4	11	24.00	28.59
282	119.54	29	76	5	31	4	15	21.66	28.13

From Berlin to Dresden — via Zossen and Elsterwerda.

64	111.71	3	10	2	52	2	42	38.92	41.37
66	111.71	3	6	2	54	2	48	38.52	39.90
62	111.71	5	10	3	6	2	56	36.04	38.12
312	111.71	25	42	4	27	3	45	25.10	29.79
346	111.71	24	49	4	45	3	56	23.52	28.43
314	111.71	24	57	5	5	4	8	21.99	27.05

Group 15.

From Dresden to Breslau — via Kohlfurt.

125	167.81	10	24	4	39	4	15	36.08	39.48
123	167.81	11	32	4	58	4	26	33.78	37.85
121	167.81	11	37	5	5	4	28	33.01	37.56
641	167.81	21	163	7	49	5	6	21.46	32.90
653	166.57	37	190	9	8	5	58	18.23	27.91
645	166.57	40	74	7	13	5	59	23.07	27.83

GERMAN TRAINS.—*Continued.*

From Dresden to Breslau — via Hirschberg.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
121	192.04	20	168	8	36	5	48	22.33	33.11
125	192.04	19	66	6	55	5	49	27.76	33.01
123	192.04	20	153	8	40	6	7	22.15	31.39
647	192.04	38	88	8	36	7	8	22.33	26.92

Group 16.

From Berlin to Breslau — via Sagan.

9	210.12	8	20	5	21	5	1	39.27	41.88
5	210.12	8	22	5	28	5	6	38.43	41.20
3	210.12	11	30	5	54	5	24	35.61	38.91
225	210.12	47	92	8	53	7	21	23.65	28.58
223	208 88	48	96	9	25	7	49	22.18	26.71

From Berlin to Breslau — via Cottbus.

113	231.18	15	38	6	24	5	46	36.12	40.08
761	217.95	15	47	6	21	5	34	34.32	39.15
771	202.73	22	55	6	19	5	24	32.09	37.54
767	214.78	29	49	6	36	5	47	32.54	37.13
111	255.41	25	63	8	29	7	26	30.10	34.36
773	214.78	32	252	10	36	6	24	20.26	33.55
769	214.78	30	161	9	10	6	29	23.43	33.12

From Berlin to Breslau — via Kohlfurt.

1	229.19	14	41	6	36	5	55	34.72	38.73
221	229.19	36	87	8	30	7	3	26.96	32.50
229	227.95	46	110	10	12	8	22	22.34	27.23

From Berlin to Breslau — via Reppen.

53	206.2	10	23	5	43	5	20	36.06	38.66
5	206.2	31	48	7	15	6	27	28.44	31.96
55	206.2	31	52	7	31	6	39	27.43	31.00
1	206.2	33	384	13	39	7	15	15.10	28.44
223	206.2	38	179	10	59	8	0	18.77	25.77

Group 17.

From Dresden to Leipsic — via Würzen.

51	74.36	2	3	1	52	1	49	39.83	40.93
6	74.36	2	6	1	55	1	49	38.79	40.93
2	74.36	4	7	2	0	1	53	37.18	39.48
8	74.36	2	5	2	0	1	55	37.18	38.79
12	74.36	5	8	2	9	2	1	34.58	36.87
474	74.36	6	7	2	10	2	3	34.32	36.27

GERMAN TRAINS.—*Continued.*

From Dresden to Leipsic — via Würzen.—*Continued.*

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
476	74.36	16	23	2	59	2	36	24.92	28.60
470	74.36	15	22	2	59	2	37	24.92	28.41
454	74.36	16	22	2	57	2	35	25.20	28.78
456	74.36	17	25	3	0	2	35	24.78	28.78
462	74.36	17	26	3	4	2	38	24.24	28.23
466	74.36	16	28	3	6	2	38	23.98	28.23
From Dresden to Leipsic — via Chemnitz and Geithain.									
104 ...	99.96	9	13	3	25	3	12	29.25	31.23
1004 ...	99.96	17	112	5	35	3	43	17.90	26.89
106 ...	99.96	21	42	4	29	3	47	22.29	26.41
1012 ...	99.96	30	68	5	30	4	22	18.17	22.89
1008 ...	99.96	31	74	5	40	4	26	17.60	22.54
Group 18. From Dresden to Nuremberg — via Chemnitz, Hof, and Bamberg.									
106	258.09	20	56	8	53	7	57	29.06	32.46
104	258.09	21	71	9	13	8	2	27.99	32.14
126	258.09	30	77	10	0	8	43	25.81	29.60
108	258.09	15	35	9	19	8	44	27.69	29.56
Group 19. From Dresden to Munich — via Hof and Regensburg.									
126 ...	337.43	14	40	10	35	9	55	31.89	34.01
108 ...	337.43	13	60	10	55	9	55	30.90	34.01
106 ...	337.43	18	71	11	17	10	6	29.91	33.41
1022 ...	337.43	26	127	12	22	10	15	27.28	32.92
1006 ...	337.43	30	76	11	57	10	41	28.24	31.59
1012 ...	337.43	72	388	21	21	14	53	15.80	22.68
1002 ...	337.43	96	513	23	39	15	6	14.27	22.35
1016 ...	337.43	88	531	24	17	15	26	13.90	21.87
Group 20. From Munich to Frankfort — via Ingolstadt, Würzburg, and Hanau.									
93	256.41	7	25	6	26	6	1	39.85	42.61
87	256.41	10	38	7	5	6	27	36.19	39.75
91	256.41	19	55	8	1	7	6	31.98	36.11
89	256.41	14	71	8	36	7	25	29.81	34.57
25	253.30	60	308	13	36	8	28	18.63	29.91
207	256.41	71	385	17	9	10	44	14.95	23.88
From Munich to Frankfort — via Ulm, Stuttgart, and Heidelberg.									
18	293.56	12	65	8	40	7	35	33.87	38.71
20	273.80	19	56	8	23	7	27	32.66	36.75
6	273.80	21	102	9	26	7	44	29.02	35.40
2	273.80	19	74	9	18	8	4	29.44	33.94

GERMAN TRAINS.—*Continued.*

GROUP 21.

From Nuremberg to Frankfort — via Würzburg and Aschaffenburg.

TRAIN NUMBER	DISTANCE (Miles)	STATION-STOPS		JOURNEY-TIME		RUNNING-TIME		MILES PER HOUR	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
67	147.81	8	31	4	30	3	59	32.85	37.14
53	147.81	5	15	4	19	4	4	34.21	36.32
55	147.81	13	50	5	0	4	10	29.56	35.42
61	147.81	7	29	4	45	4	16	31.12	34.61
51	147.81	12	33	4	59	4	26	29.68	33.36
443	147.81	27	90	6	51	5	21	21.58	27.63
449	147.81	47	178	9	42	6	44	15.24	21.96

GROUP 22.

From Leipsic to Frankfort — via Halle, Cassel, and Marburg.

554	279.83	10	69	8	16	7	7	33.85	39.31
84	279.83	15	72	8	40	7	28	32.28	37.47
468	279.83	18	149	10	10	7	41	27.52	36.42
432	279.83	89	277	14	58	10	21	18.69	27.03
132	279.83	81	314	15	44	10	30	17.78	26.65
152	279.83	88	331	16	3	10	32	17.43	26.56
160	279.83	53	172	13	49	10	57	20.25	25.55

From Leipsic to Frankfort — via Weimar, Bebra, and Elm.

96	239.26	13	39	6	52	6	13	34.84	38.48
188	239.26	21	47	7	23	6	36	32.40	36.25
14	239.26	21	63	7	42	6	39	31.07	35.97
92	239.26	17	51	7	36	6	45	31.48	35.00
256	239.26	37	156	10	4	7	28	23.76	32.04
258	239.26	69	516	18	20	9	44	13.05	27.82
252	239.26	69	274	13	51	9	17	17.27	25.77
266	239.26	69	173	12	59	10	6	18.42	23.68

From Leipsic to Frankfort — via Weimar, Bebra, and Marburg.

262	295.92	35	171	11	10	8	19	26.50	35.58
254	278.90	71	130	11	37	9	27	24.00	29.51
400	278.90	69	224	13	17	9	33	20.99	29.20

GROUP 23.

From Leipsic to Hanover — via Halle, Magdeburg, and Braunschweig.

160	165.34	10	56	5	4	4	8	32.61	40.03
84	165.34	11	41	4	53	4	12	33.60	39.36
440	165.34	18	75	5	57	4	42	27.79	35.18
152	165.34	17	188	8	11	5	3	20.21	32.74
158	165.34	27	117	7	7	5	10	23.22	31.98
468	165.34	40	134	7	48	5	34	21.20	29.68
434	165.34	43	182	9	14	6	12	17.91	26.67

GERMAN TRAINS.—*Continued.*

From Leipsic to Hanover — via Halle, Goslar, and Hildesheim.

Train Number	Distance (Miles)	Station-Stops		Journey-Time		Running-Time		Miles per Hour	
		No.	Min.	Hours	Min.	Hours	Min.	Journey-Speed	Running-Speed
132	162.80	8	29	4	42	4	13	34.64	38.58
554	162.78	33	335	9	54	4	19	16.44	37.68
From Leipsic to Hanover — via Vienenberg and Braunschweig.									
136	160.06	10	23	4	35	4	12	34.95	38.11
154	160.06	10	114	6	21	4	27	25.21	35.97
From Leipsic to Hanover — via Bitterfeld and Magdeburg, Braunschweig.									
146	170.50	12	39	5	12	4	33	32.79	37.47
From Leipsic to Hanover — via Halle, Nordhausen and Northeim.									
444	178.7	26	110	6	48	4	58	26.28	35.96
468	178.7	24	115	7	10	5	15	24.92	34.04
84	178.7	23	85	6	41	5	16	26.75	33.91
436	178.7	34	172	8	42	5	50	20.54	30.65
From Leipsic to Hanover — via Halle, Magdeberg, and Oebisfelde.									
154	168.64	22	142	7	8	4	46	23.64	35.35
Group 24.									
From Leipsic to Hamburg — via Halle, Madgeburg, and Wittenberge.									
160	242.74	8	27	6	4	5	37	40.01	43.21
158	242.74	21	43	6	50	6	7	35.52	39.68
152	242.74	22	52	7	19	6	27	33.17	37.63
468	242.74	28	113	8	32	6	39	28.44	36.50
From Leipsic to Hamburg — via Halle, Magdeburg, and Uelzen.									
84	229.38	14	51	6	26	5	35	35.65	41.08
Group 25.									
From Hanover to Nuremberg — via Göttingen, Elm. and Hanau.									
74	339.88	20	205	12	59	9	34	26.19	35.52
From Hanover to Nuremberg — via Göttingen, Elm, and Würzburg.									
76	285.27	19	74	9	21	8	7	30.51	35.13
78	304.03	42	137	12	14	9	57	24.86	30.56
72	285.27	50	129	11	46	9	37	24.24	29.65

AMERICAN TRAINS AVERAGED BY GROUPS.

Group Number	All Trains from	Number of Trains Averaged	Average Distance Traveled	Average Journey-Speed of All Trains	Average Running-Speed of All Trains
3.....	New York (J.C.) to Philadelphia	55	90.30	41.38	43.52
4.....	Philadelphia to Baltimore	34	95.75	39.86	41.90
6.....	Philadelphia to Buffalo.....	9	422.30	36.22	39.87
5.....	New York to Buffalo.....	30	432.68	37.30	39.46
1.....	New York to Boston.....	21	232.53	35.26	39.06
11.....	Buffalo to St. Louis.....	3	741.00	36.41	38.78
19.....	Baltimore to Buffalo	2	396.00	36.20	38.54
2.....	Boston to Buffalo.....	8	491.80	36.04	38.01
15.....	Cleveland to St. Louis	5	558.00	35.53	37.83
9.....	Buffalo to Cleveland.....	16	197.75	33.22	37.51
7	Philadelphia to Pittsburg.....	10	353.70	34.10	37.12
10.....	Buffalo to Chicago	13	546.70	33.78	36.84
23.....	Cincinnati to St. Louis.....	6	356.33	32.75	36.45
17.....	Pittsburg to St. Louis.....	7	660.00	32.29	36.24
13.....	Cleveland to Chicago	14	359.59	33.31	35.62
20.....	Baltimore to Pittsburg	7	336.22	33.42	35.54
22.....	Cincinnati to Chicago.....	11	306.11	32.98	35.43
14.....	Cleveland to Cincinnati.....	8	287.30	30.11	35.26
16.....	Pittsburg to Chicago.....	8	482.90	32.47	34.77
24.....	Chicago to St. Louis.....	10	286.51	31.16	34.66
12.....	Pittsburg to Cleveland	12	146.00	28.50	34.31
21.....	Baltimore to Cincinnati	3	392.00	32.24	34.27
18.....	Pittsburg to Cincinnati.....	7	328.00	31.10	33.98
8.....	Buffalo to Pittsburg.....	7	252.00	29.34	32.55

GERMAN TRAINS AVERAGED BY GROUPS.

Group Number	All Trains from	Number of Trains Averaged	Average Distance Traveled	Average Journey-Speed of All Trains	Average Running-Speed of All Trains
24.....	Leipsic to Hamburg	5	240.07	34.12	39.46
10.....	Berlin to Nuremberg.....	4	306.91	34.94	38.61
1.....	Berlin to Hamburg	15	180.39	32.44	36.86
23.....	Leipsic to Hanover.....	17	168.06	24.75	34.49
20.....	Munich to Frankfort.....	10	265.03	27.42	34.41
3.....	Hamburg to Cologne	6	279.75	27.64	34.14
11.....	Berlin to Leipsic	12	107.30	28.33	34.02
4.....	Berlin to Hanover.....	23	168.10	29.35	33.91
7.....	Hanover to Frankfort.....	11	237.45	25.91	33.72
16.....	Berlin to Breslau.....	20	215.92	27.10	33.59
2.....	Hamburg to Hanover.....	15	123.76	27.71	33.58
6.....	Berlin to Cologne	11	379.72	25.69	33.54
14.....	Berlin to Dresden	11	115.27	27.61	33.41
5.....	Hanover to Cologne	19	199.24	25.63	33.15
8.....	Berlin to Frankfort	22	355.98	26.10	33.14
25.....	Hanover to Nuremberg.....	4	303.61	26.21	32.60
15.....	Dresden to Breslau	10	177.25	24.74	32.19
21.....	Nuremberg to Frankfort.....	7	147.81	25.80	31.35
12.....	Leipsic to Nuremberg..... ...	14	208.95	22.77	31.16
18.....	Dresden to Nuremberg.....	4	258.09	27.59	30.88
22.....	Leipsic to Frankfort.....	18	268.59	22.67	30.55
17.....	Dresden to Leipsic	17	81.89	25.39	29.84
9.....	Frankfort to Cologne	27	138.74	23.12	29.23
13	Nuremberg to Munich	11	123.45	24.62	28.76
19.....	Dresden to Munich.....	8	337.43	21.36	28.04

The superiority of the passenger train service of America railways is demonstrated conclusively by the foregoing tables, and it is to be remembered that the very fastest trains in the United States, namely those between Camden and Atlantic City, are not included with the American trains, while the tables show the very fastest trains running in Germany. The overwhelming superiority at every point of the American train service is shown in narrow compass by the condensed table which follows.

SUMMARY OF GERMAN AND AMERICAN TRAINS.

	German Trains	American Trains
1. Whole number of trains averaged	321	306
2. Number of lines showing trains having an average running-speed above 40 miles per hour	22	26
3. Number of trains having an average journey-speed above 40 miles per hour	18	90
4. Total number of trains having an average running-speed above 40 miles per hour	45	122
5. Number of trains having an average running-speed above 50 miles per hour	3	12
6. Number of trains having an average running-speed from 45 to 50 miles per hour	4	36
7. Number of trains having an average running-speed from 40 to 45 miles per hour	38	74
8. Number of groups showing, when all trains of the group were averaged, a journey-speed above 30 miles per hour	3	22
9. Number of groups showing, when all trains of the group were averaged, a running-speed above 35 miles per hour	3	18

IV.

How, it is likely to be asked, was it possible for Mr. Schulze, in view of the marked pre-eminence of American trains just shown, to prepare even a plausible argument to support his contention of the superiority of the German service? The answer is not far to seek. It is found in the fact that every trade has its tricks, that of the statistician not excepted.

Mr. Schulze treated the two countries on widely differing bases. It was largely by confining his observations, on the one hand, to but a limited portion of the United States, and not covering that either fairly or thoroughly, and, on the other hand, by scouring the whole of Germany for odds and ends of trains,

which by hook or by crook could be made to show a speed of 65 kilometers per hour, the arbitrary standard of excellence selected by him, and by splitting up the journeys of the fast trains of Germany into many segments, and calling each a train, that Mr. Schulze succeeded in making it appear that there were more fast trains in Germany than in the United States.

It is not deemed necessary, because of Mr. Schulze's rejoinder, to restate or to enlarge my extended criticism of his tables of German and American trains.[15] Patience need not be expended in a detailed review of the more favorable treatment Mr. Schulze gave the trains of Germany. A summary of the different ways in which he favored the trains of Germany, with illustrations of each, and a brief reply to a charge of unfairness, will suffice.

It was asserted in my criticism[16] of Mr. Schulze's comparison of the speed of German and American trains that he was an inaccurate and far from impartial investigator and judge. These charges will bear repetition, and may briefly be enumerated and illustrated.

His principal inaccuracies fall under two heads: (1) the American trains he gives are not always the fastest trains running between the cities under consideration; and (2) where the trains introduced are the fastest, yet the speed given is not so

[15] With but a single exception, and this of very limited scope, no criticism of any importance of Mr. Schulze's tables need be altered or withdrawn. Mr. Schulze's designations of American trains were very indefinite and caused a misunderstanding. The names of the railroads were never given, and the cities selected to indicate the route followed were seldom well chosen. It was stated by me that in giving the fastest trains between New York and Boston he omitted the trains via Springfield. Mr. Schulze explains that a train by this route was included under the line entitled "New York-Hartford-Boston." Had he employed the current designation of this route, which always appears in the heading of the tables showing the service by this route, viz., "via Springfield," the misunderstanding would have been avoided. The trains to Boston via Hartford and Willimantic are usually spoken of as running via Hartford, and it was supposed that Mr. Schulze had included one of these. As it now appears, no train via Hartford and Willimantic was given, and the criticism should have run against Mr. Schulze for not including a train by this route, instead of for not giving a train by the Springfield route.

[16] "American and German High-Speed Trains," JOURNAL OF POLITICAL ECONOMY, Vol. X, pp. 361 ff.

high as it should be. The most notable errors of the first kind are found in the case of the trains running between New York and Pittsburg, Chicago and Cleveland, Philadelphia and Buffalo, Buffalo and Pittsburg, and Cincinnati and Cleveland.[17]

Mr. Schulze objects to a few of the combinations made by me on the ground that for a part of a journey I used a train already used by him. For example, in giving the trains from Philadelphia to Buffalo, for a part of the way I used the "Black Diamond Express," which had already been given by him in his list of trains from New York to Buffalo. This criticism is of no validity. Mr. Schulze has done the same in preparing his table of German trains, as will be seen by a reference to trains Nos. 39 and 40. This is an instance of his refusal to apply the same tests to American as to German trains.

His errors of the second kind, often of considerable importance, were due to his failure to note that over parts of the journey, usually the beginning or the end, the passengers were carried by ferryboat. Passengers leaving New York city by all of the railroads, except the New York, New Haven & Hartford and the New York Central railroads, are carried to the west bank of the Hudson River by ferries, and there take the cars.

Of the forty-two trains found in the table, eighteen are scheduled from New York city, and of these five leave over the New York Central & Hudson River and the New York, New Haven & Hartford railways, and therefore really start from New York city. The remaining thirteen trains do not start from New York city, but from the New Jersey shore, the passengers crossing the Hudson River on ferryboats. Now, the schedule time of departure from New York city is the hour the ferryboat leaves, and it is hardly fair to charge this time to the train which is waiting on the other side of the river. It seems the more unfair to do this because the distance across the river is generally not added to the mileage actually run by the train. This fact should have been a sufficient hint to Mr. Schulze that he would err if he took the New York city time as the time the train departed.

To all trains this addition of from thirteen to fifteen minutes

[17] For a full statement of these trains see *ibid.*, pp. 374, 375, 381, 382.

to their running-time is a matter of some importance, and for the short-distance trains it counts heavily. For example, train No. 85 for Philadelphia, on the Pennsylvania Railroad, is scheduled to leave Desbrosses Street, and Cortland Street also, at 4 P. M., but, as a matter of fact, the ferryboats leave at 4 o'clock, the train starting from Jersey City at 4:13 P. M. Here, then, is an error of thirteen minutes in the time of the departure of this train, and, as the run is a short one, the speed of this train consequently is very materially understated. Mr. Schulze, allowing three minutes for three stops, reports that it runs at an average speed of 75.4 kilometers per hour, while it really runs, allowing two minutes for two stops, at an average speed of 82.6 kilometers per hour. Passengers for Atlantic City from Philadelphia, by the trains over the two routes Mr. Schulze cites, are ferried across the Delaware River to Camden, and there take the train. Passengers on the Overland Limited are not carried into San Francisco by rail. The train stops at Oakland, and from there the passengers are carried over the wide bay by ferry.

It will be remembered that Mr. Schulze explained that the task of ascertaining the speed of the fastest train on all the leading American railways was so great that he would not attempt it. To bring his labors within what he deemed proper bounds, he confined his investigations to the railways between a few large cities. Consequently the table, even if this limited field had been properly covered, would have had but slight value for comparative purposes. Many of the most important lines received no consideration whatever. Even the excellent service between Chicago and Milwaukee, on the Chicago & North-Western and on the Chicago, Milwaukee & St. Paul railways, received no consideration.

In his rejoinder Mr. Schulze attempts to belittle the service just referred to. He seems to hold that, as it does not rank with the very best American service, and as the distance run is not great, his omission of this service should not call for unfavorable comment.[18]

First of all it may be remarked that the inclusion or exclusion

[18] *Archiv für Eisenbahnwesen*, 1902, p. 1256.

of the trains between Chicago and Milwaukee should not turn on the results of a comparison of these trains with other American trains, but rather on the manner in which they bear comparison with German trains. In a comparison where every train having a speed in excess of 65 kilometers per hour helps to turn the tide in favor of one country or the other, it should not be considered amiss to call attention to the omission of the service between two cities where one of the two lines has one train showing a speed of 79.1,[19] and another train with a speed of 78.2 kilometers, and the other line has a train showing a speed of 74.8 kilometers per hour.

Certainly it is not for Mr. Schulze to object, for several of the German trains of his table barely show a speed of 65 kilometers per hour, and at least one, train No. 22 from Kempten to Munich, succeeds in getting over the fence that separates Mr. Schulze's sheep from his goats only with the positive assistance of Mr. Schulze.

Let us see how the service between Chicago and Milwaukee, which Mr. Schulze deems unworthy of notice, compares with the service of Germany, in point both of speed and of distance. Of all the German trains that find a place in Mr. Schulze's summary tabulation of German and American trains[20] only one, that from Wittenberge to Hamburg, shows a speed greater than 79.1 kilometers per hour, the speed of the fastest train between Chicago and Milwaukee. The cities between which the fastest two German trains run and the length of their journeys are shown in the table which follows:

From	Kilometers	Running-Speed (Kilometers)
Wittenberge to Hamburg...	159	82.3
Chicago to Milwaukee.....	137	79.1
Stendal to Hanover.....	150	78.9

Mr. Schulze broadly intimates that if the Chicago-Milwaukee trains may not be neglected on the ground that their speed is not

[19] Mr. Schulze made a small error in giving the speed of this train. He overlooked a stop.

[20] *Archiv für Eisenbahnwesen*, 1901, p. 796.

great, they may be omitted on the ground that their run is only a short one. The run of the Chicago-Milwaukee train is very nearly equal to that of the two German trains of the table just submitted. Further, it may be added that of the sixteen German trains having a running-speed, according to Mr. Schulze's computations, of above 70 kilometers per hour, seven run a shorter distance than that run by the Chicago-Milwaukee trains, two running even less than 100 kilometers, and two others running just a little over 100 kilometers. Of the thirty-six German trains having a running-speed, according to Mr. Schulze's computations, above 65 kilometers per hour, fourteen run a less distance than that run by the Chicago-Milwaukee trains, and one runs but a kilometer farther. Of Mr. Schulze's thirty-six German trains, three run less than 100 kilometers and four just a little over 100 kilometers.

In concluding my remarks on Mr. Schulze's omission of the service over the two routes from Chicage to Milwaukee, it may be stated that this service, taken as a whole, is superior to that between any two cities of Germany, the service between Berlin and Hamburg alone excepted.

It has been pointed out that by limiting his investigation of American trains to a narrowly circumscribed territory Mr. Schulze greatly impaired the value of his comparisons. It has been shown that there are many trains having a speed in excess of 65 kilometers per hour wholly omitted by him. In the preparation of his table of German trains he should have confined himself to the best trains between the most important ten cities of the Empire, just as he limited his investigations to the trains between the most important ten cities of the United States.

Some of the fast American trains that should have been added to the American table have been indicated. The number of trains will now be stated which should have been omitted from the table of German trains to make it comparable with the American table. Of the thirty-six German trains which Mr. Schulze finds to have a speed of 65 kilometers or more, at least sixteen do not run between the most important ten cities of the empire. They should therefore, on Mr. Schulze's criterion, have been omitted.

It was shown in my criticism that by another device German train service was made to appear to much better advantage than it deserved. The journeys of several of the fastest German trains were broken up, and each segment counted as a train run. For example, the "Orient Express," which runs through Germany from Avricourt to Salzburg, a distance of 659 kilometers, appeared in the table three different times; the "North and South Express," which runs from Berlin to Kufstein, a distance of 753 kilometers, appeared in the table two different times; the "North Express," on its journey from Herbesthal to Hanover, a distance of 410 kilometers, was counted as two different trains, and as still another train on its journey from Dirschau to Edytkuhnen.

It was contended that it was misleading to count each one of these trains in the comparison, as two or even three trains, while the "Lake Shore Limited," running from Chicago to New York, a distance of 1,578 kilometers; the "Pennsylvania Limited," running between the same cities; the "Overland Limited," running from Chicago to San Francisco, a distance of 3,895 kilometers, each counted as but a single train.

In answer to these strictures Mr. Schulze made the lame reply that he could have further subdivided the journeys of German trains.[21] To this explanation it is sufficient to answer that we are here concerned, not with a question of the absolute divisibility of train journeys, but with a question of equality of treatment. I did not intend to imply that it would be quite impossible still further to subdivide the journeys of German trains.

The average distance traveled by the trains of this country is generally much greater than that of the trains of Germany, and Mr. Schulze, if he did not desire to make the disparity any greater than need be, should not have subdivided the journeys of such German trains as traveled fairly long distances. The average distance traveled by the thirty-six German trains which Mr. Schulze found to have a speed of 65 kilometers or more was 205.4 kilometers, while the average distance traveled by the

[21] *Archiv für Eisenbahnwesen*, 1902, p. 1256.

twenty-six American trains having a speed of 65 kilometers or more was 334.0 kilometers.

No. 23 of Mr. Schulze's table of American trains purported to be a train from Chicago to Cleveland by the way of Cincinnati. It was pointed out that no one travels to Cleveland by this route, and that an entirely different train makes the trip from Cincinnati to Cleveland than the one that starts from Chicago. It was also shown that Mr. Schulze's integration of these two trains meant a loss to the American table of two trains having a speed of over 65 kilometers per hour, because the trains making a good connection at Cincinnati would not show an average speed for the whole journey as high as 65 kilometers per hour.

To illustrate the absurdity of going from Chicago to Cleveland via Cincinnati it was compared with traveling from Brussels to Berlin by way of Zurich. Mr. Schulze's reply[22] is a reflection either on his candor or his intelligence. He says that the distance traveled unnecessarily *(Umweg)* in going from Chicago to Cleveland via Cincinnati is only 342 kilometers, while the distance traveled unnecessarily in going from Brussels to Berlin via Zurich is 770 kilometers.

Mr. Schulze's attention may be called to the fact that the direct distance in the latter instance is about twice as long as in the former, and that we are here concerned with a question of degree, not with absolute quantities.

Another way in which Mr. Schulze unfairly adds to the list of German trains having a speed in excess of 65 kilometers per hour is by cutting off such portion of the train's journey as would reduce the average speed below 65 kilometers per hour. This was done in several cases; *e. g.*, train No. 2 of his table really starts from Hamburg, but, assuming that it starts from Altona, its journey at low speed with several stops from Hamburg to Altona is cut out and the average running-speed to Kiel is thereby raised slightly above 65 kilometers per hour. Train No. 9, the Berlin-Budapest-Orient Express, begins its journey at Charlottenburg, but Mr. Schulze takes no note of it until it reaches the Schlesischer station, which is well to the eastern side of Berlin.

[22] *Ibid.*, p. 1255.

The slow journey through the city is thus counted out. Train No. 17 is a good example of the splitting up of a train's journey to eliminate a bad stretch of track; 96 kilometers run at the low rate of 51.4 kilometers per hour in one direction and at 44 kilometers in the other were lopped off.

Another way in which the balance was tipped in favor of the German service was by boldly throwing out of consideration the very best American trains. It may well be asked why the trains between Philadelphia and Atlantic City were altogether omitted from the comparison. To be sure, the very fastest trains on both of the railways concerned did not run during the winter months at the time Mr. Schulze wrote; but it is insisted that this is not a sufficient reason for dropping the trains between these two cities entirely out of the comparison, for there were several trains over each of the railways whose average speed, both winter and summer, exceeded Mr. Schulze's figures of 65 kilometers per hour. Mr. Schulze was aware of this, for at another point he states that a winter train on one of the railways had an average speed of 89.4 kilometers per hour, and one on the other railway an average speed of 82.6 kilometers.[23] Even the lower of these speeds is higher than that attained by any German train in the comparison.

To throw out these American trains because they did not run through the winter, and to give a German train a place in his table which runs but once a week, another which runs but three times a week, and still another which runs but three and one-half months out of twelve, is certainly not even-handed.[24] These trains are Nos. 8, 6, and 23 of the German trains, and are credited with a speed respectively of 70.5, 71.6, and 72.0 kilometers per hour, and therefore account for three of the sixteen German trains reported by Mr. Schulze as having a speed of 70 kilometers or more per hour.

Perhaps nothing better illustrates Mr. Schulze's skill in manipulating facts than the manner in which he draws on the

[23] *Archiv für Eisenbahnwesen*, 1901, p. 794.

[24] If it were desirable to enlarge this list, the trains running to Switzerland during the summer time only could be added.

favorable stretch of track from Berlin to Halle. Five of the sixteen German trains having a speed in excess of 70 kilometers per hour count in the comparison on the basis, or substantially on the basis, of their speed over this short stretch of track. To refuse the American trains between Chicago and Milwaukee any place in his comparison and then include five German trains over one short stretch of track shows to what straits Mr. Schulze was put to secure a comparison favorable to the German service. The numbers borne by these trains in Mr. Schulze's table and their speed as stated by him are given in the subjoined table:

Number	From	Distance (Kilometers)	Average Speed (Kilometers)
30	Berlin to Bitterfeld	132	74.7
23	Berlin to Halle	162	72.0
17A	Berlin to Halle	162	76.5
29	Berlin to Halle	162	77.1
15	Berlin to Leipsic	173	76.9

The first train, that from Berlin to Bitterfeld, although it runs on through Halle, makes its first stop at Bitterfield, and its speed to that city is given by Mr. Schulze. The last train runs down to Bitterfield, and then south to Leipsic, without making a stop all the way from Berlin.

Mr. Schulze states that some of the evidence marshaled by him in support of his contention that American trains do not run anywhere near as fast as they were reported as running by the daily and technical press, was neither quoted nor given consideration by me. He complains that my failure to cite all the evidence he presented would lead people to infer that his position was but weakly supported.[25]

No one should have been misled by my résumé of his evidence. It was distinctly stated, just before the first quotation from Mr. Schulze was introduced, that a *few* examples of incorrect statements of extraordinary speed on American railways would be presented. On submitting the first quotation from Mr. Schulze it was explicitly stated that this was the first report of

[25] *Archiv für Eisenbahnwesen*, 1902, pp. 1246, 1247.

speed he questioned, and on presenting the next quotation it was clearly stated that this was the last record he challenged. Surely two do not make a few examples.

Now, as to the value of the omitted evidence. I did not deem it worthy of consideration. To have passed it in silence might have been taken as a kindness, for the so-called evidence is unworthy of serious discussion.

One of the three reports ignored by me concerned a run over the Chicago, Rock Island & Pacific Railroad from Chicago to Omaha. That the speed reported was incorrect appeared on the face of the return, for the division of the distance by the time consumed in making the run was grossly inaccurate. Another of the three ignored reports was for a run from Erie to Cleveland. In this case the distance was greatly overstated, and consequently the average speed reported was much too large.

Neither one of these pieces of so-called evidence was introduced by me because these two reports of high speed were obviously incorrect. It was supposed that Mr. Schulze aimed to discuss the question of the speed attained on American railways on its merits. It was entirely unnecessary to write an article of twenty pages to demonstrate the fact that errors occasionally occur in the daily and technical press, or for that matter in any other class of publications. Mr. Schulze feels especially aggrieved because of the third omission. He says in this instance there was absolutely no question but that a great error has been made.[26] What is it that so stirs Mr. Schulze's emotions? Nothing more than this: He finds that the announcement of the Royal Blue Line in the *Official Guide* of August, 1900, that its trains between Washington and New York are the "fastest, finest, and safest trains in the world," is untrue. This, to Mr. Schulze, a startling revelation, is to us of course not even an object of surprise. The announcement was an advertisement of the Royal Blue Line. In seeking patronage for their respective railways passenger agents often overstep the bounds of strict veracity, and no one is misled. General passenger agents, like statesmen on the stump,

[26] *Ibid.*, p. 1247.

are not held to strict accountability for their utterances; they have been accorded a form of poetic license.

In closing, while disclaiming belief in the extreme records he quoted, I wish again to assert, as in my former article, that Mr. Schulze has submitted no proof which seriously impairs the standing of either of the two reports of high speed on American railways that I formerly or now consider worthy of discussion. This position is taken for the simple reason that I do not regard the speed of regular trains as a satisfactory guide to the speed attained in emergencies, and no other evidence of any weight has been introduced. It is not enough to submit the average speed maintained by regular trains and to contrast this with the speed reported on an emergency run, and point to the fact that the latter is much higher and exclaim, "Impossible!" This procedure may be an elaborate case, but it is none the less a plain case, of begging the question.

So much for his evidence submitted in disproof of the reports of high speed said to have been made in America. On what sort of basis his second contention rested, viz., that, when considered in a large way, the passenger-train service of Germany was superior to that of the United States, has been shown at length. It was only by a varied resort to sharp practice that Mr. Schulze succeeded in compiling a table which showed that there were more fast trains in Germany than in the United States. An even-handed comparison immediately shows the superiority of the American service.

GEORGE G. TUNELL.

CHICAGO.

REASONABLE RATES.

STATES may fix local rates for public service, but decisions of the United States Supreme Court have swept away the power of states to make their rates conclusive.

This result has been reached gradually through a line of decisions under the Fourteenth Amendment.

In the earliest cases of rate regulation under the amendment the court declined to review the reasonableness of rates fixed by states, holding this to be purely a legislative question. Later the court decided to review the extent of rate regulation, but held that rates which permitted some, though only a slight, return on the property devoted to a public service were legal. Finally a position has been reached where rates fixed by states are held invalid unless they permit as large profits as the court thinks the public service ought to yield. In this way the power to determine what are reasonable rates for public service has been transferred from state legislatures to the Supreme Court.

The first case in which the extent of state regulation of rates for public service was brought before the Supreme Court for review, after adoption of the Fourteenth Amendment, was Munn *vs.* Illinois,[1] decided in 1876. This case involved the validity of an Illinois statute that fixed a maximum rate for storing grain in elevators at Chicago. Munn, having been convicted and fined in the state courts for violation of the statute, appealed to the United States courts on the ground that enforcement of the rate provided by the statute would take his property without due process of law and violate the Fourteenth Amendment. In the course of an opinion upholding the validity of the statute, Chief Justice Waite said, speaking for the court:

> It is insisted, however, that the owner of property is entitled to a reasonable compensation for its use, even though it be clothed with a public interest, and that what is reasonable is a judicial and not a legislative question.
>
> As has already been shown, the practice has been otherwise. In countries where the common law prevails, it has been customary from time immemorial for the legislature to declare what shall be reasonable compensation under such circumstances, or, perhaps more properly speaking to fix a maximum

[1] 94 U. S. 113.

beyond which any charge made would be unreasonable. . . . . The controlling fact is the power to regulate at all. If that exists, the right to establish the maximum of charge, as one of the means of regulation, is implied.

From these statements it is perfectly clear that the question as to the right of those engaged in a public calling to have a judicial review of rates fixed by a legislature was squarely presented to the court in this case. It is equally clear that in the opinion of the court no such right existed.

Of the nine Supreme Court Justices, two, Field and Strong, dissented from the decision in Munn *vs.* Illinois. The dissenting opinion was prepared by Justice Field and concurred in by Justice Strong. This dissent went on the broad ground that the storage of grain is not a public business or one for which a legislature has the power to fix rates. Nowhere in the dissenting opinion is it contended that in a public business where a legislature has the right to fix rates the amount or reasonableness of these rates can be reviewed by the court. On the contrary, Judge Field said in the course of his opinion:

If it be admitted that the legislature has any control over the compensation, the extent of that compensation becomes a mere matter of legislative discretion. . . . . The several instances mentioned by counsel in the argument, and by the court in its opinion, in which legislation has fixed the compensation which parties may receive for the use of their property and services, do not militate against the views I have expressed of the power of the state over the property of the citizen. They were mostly cases of public ferries, bridges, and turnpikes, of wharfingers, hackmen, and draymen, and of interest on money. In all these cases, except that of interest on money, which I shall presently notice, there was some special privilege granted by the state or municipality; and no one, I suppose, has ever contended that the state had not a right to prescribe the conditions upon which such privilege should be enjoyed.

At the October term of the Supreme Court, in 1876, when the opinion in Munn *vs.* Illinois was delivered, cases involving the validity of railway rates fixed by the legislatures of Iowa, Minnesota, and Wisconsin were also decided. Several of these cases involved the power of legislatures to fix conclusively the rates for public service under the Fourteenth Amendment, and in each case the court affirmed this power.

In Chicago, Burlington & Quincy Railroad Co. *vs.* Iowa,[2] maximum rates fixed for transportation by a statute of that state were contested on the ground, among others, that the rates fixed would take property of the railway without due process of law. Replying to

[2] 94 U. S. 155.

this contention the court in an opinion upholding the statute said through Chief Justice Waite:

> In the absence of any legislative regulation upon the subject, the courts must decide for it, as they do for private persons, when controversies arise, what is reasonable. But when the legislature steps in and prescribes a maximum of charge, it operates upon this corporation the same as it does upon individuals engaged in a similar business.

In other words, the court decided that due process of law was satisfied when rates for public service were fixed by the legislature.

The next case, Peik *vs.* Chicago & North-Western Railway Co.,[3] was brought to restrain the enforcement of a law of Wisconsin that fixed maximum rates for passengers and freight. It was contended on the part of the railway security holders that the rates named in the statute would destroy the value of their securities, that the railway was entitled to collect reasonable compensation for its services, and that reasonable compensation was a question for the court and not for the legislature. Chief Justice Waite again delivered the opinion of the court, in which it was said, upholding the statute:

> In Munn *vs.* Illinois, *supra*, p. 113, and Chicago, Burlington & Quincy Railroad Co. *vs.* Iowa, *supra*, p. 155, we decided that the state may limit the amount of charges by railroad companies for fares and freights, unless restrained by some contract in the charter, even though their income may have been pledged as security for the payment of obligations incurred upon the faith of the charter. So far this case is disposed of by those decisions. . . . . As to the claim that the courts must decide what is reasonable, and not the legislature. This is not new to this case. In has been fully considered in Munn *vs.* Illinois. Where property has been clothed with a public interest, the legislature may fix a limit to that which shall in law be reasonable for its use. This limit binds the courts as well as the people. If it has been improperly fixed, the legislature, not the courts, must be appealed to for the change.

In Chicago, Milwaukee & St. Paul Railroad Co. *vs.* Ackley[4] the court said, speaking through Chief Justice Waite:

> The only question presented by this record is whether a railroad company in Wisconsin can recover for the transportation of property more than the maximum fixed by the act of March 11, 1874, by showing that the amount charged was no more than a reasonable compensation for the services rendered. . . . . But for goods actually carried, the limit of the recovery is that prescribed by the statute.

Two cases[5] involving railway rates under a statute of Minnesota

[3] 94 U. S. 164. [4] 94 U. S. 179. [5] 94 U. S. 180.

followed those just considered, and the court in brief opinions stated that they were covered by the rulings already made.

In Stone *vs.* Wisconsin,[6] which was decided in favor of a state statute fixing rates, the only question not covered by Chicago, etc., Railway Co. *vs.* Ackley, according to the court, related to the construction of a certain charter.

Justices Field and Strong dissented in each of the above railway cases, but gave no opinion until Stone *vs.* Wisconsin was reached, when Justice Field prepared an opinion in which Justice Strong concurred. In this opinion the dissent to this entire group of railway cases was put on the ground that the railway charters were contracts with the legislatures, which should protect the companies from state regulation of rates.

Besides Chief Justice Waite, the celebrated group of cases headed by Munn *vs.* Illinois was supported by Justices Clifford, Hunt, Bradley, Swayne, Davis, and Miller. The assertion by these judges of the power of states to fix conclusive rates for public service seems to have been as emphatic as any believer in local self-government could desire.

The doctrine of the Granger Cases, that a state may fix conclusive rates for local public service was reaffirmed in the case of Ruggles *vs.* Illinois,[7] where the validity of a law of that state providing a maximum fare per mile on railways was called in question. In the course of its opinion sustaining the law the Supreme Court said:

> This implies that, in the absence of direct legislation on the subject, the power of the directors over the rates is subject only to the common law limitation of reasonableness, for in the absence of a statute, or other appropriate indication of the legislative will, the common law forms part of the laws of the state to which the corporate by-laws must conform. But since, in the absence of some restraining contract, the state may establish a maximum of rates to be charged by railroad companies for the transportation of persons and property, it follows that, when a maximum is so established, that fixed by the directors must conform to its requirements, otherwise the by-laws will be repugnant to the laws.

Seven judges supported the majority opinion in this case, and two judges, Field and Harlan, delivered separate concurring opinions. Judge Harlan held that the charter of the railway in question was a contract that gave it the right to collect reasonable rates, but that the rates fixed by statute were not shown to be unreasonable. Judge Field

[6] 94 U. S. 181. [7] 108 U. S. 526.

held that the statutory rates had not been shown unreasonable, but did not state why he thought that they were bound to be reasonable.

By 1885 a fundamental change had taken place in the position of a portion of the court on the question of state power over rates for public service. This change was brought out by the case of Stone *vs.* Farmers' Loan & Trust Co.,[8] where an effort was made to enjoin the enforcement of rates under a Mississippi statute. The court through Chief Justice Waite affirmed the power of the state to fix rates and upheld the statute, but added:

> From what has been said, it is not to be inferred that this power of limitation or regulation is itself without limit. This power to regulate is not a power to destroy, and limitation is not the equivalent of confiscation. Under pretense of regulating fares and freights, the state cannot require a railroad corporation to carry persons or property without reward; neither can it do that which in law amounts to a taking of private property for public use without just compensation, or without due process of law. What would have this effect we need not now say, because no tariff has yet been fixed by the commission, and the statute of Mississippi expressly provides "that in all trials of cases brought for a violation of any tariff of charges, as fixed by the commission, it may be shown in defense that such tariff so fixed is unjust.

Thus was the underlying principle of the Granger Cases as to reasonable rates brought in question. Unlimited power of regulation like that affirmed in those cases may certainly be used to destroy and did in fact destroy much of the value of railway securities under the Granger Acts. It was said of the United States Bank by Chief Justice Marshall in M'Culloch *vs.* State of Maryland:[9]

> That the power of taxing it by the states may be exercised so as to destroy it, is too obvious to be denied.

The tax imposed by Congress on note issues of state banks after the close of the Civil War in the exercise of its power to regulate the currency, and upheld in Veazie Bank *vs.* Fenno,[10] certainly destroyed these issues completely. Of course, if the power to regulate is itself regulated by some other and higher power, the former may be held within any desired limits. The above quotation from the opinion in Stone *vs.* Farmers' Loan and Trust Co.[11] must mean, therefore, an assertion by the court of its power to review rates fixed by a state. Even the Granger Cases never decided that a railway must continue in business against its will under rates fixed by a state; it was open to the railway to go out of business. Neither did the Granger Cases decide

[8] 116 U. S. 307. [9] 4 Wheaton 316. [10] 8 Wall. 533. [11] 116 U. S. 307.

that the property used in a public service might be taken without due process of law, but rather that state regulation of rates for such service was due process of law. The power asserted by the court in the case under consideration must therefore relate to the review of the reasonableness or justice of rates fixed by a state. This meaning is made clear by the statement that:

> What would have this effect we need not now say, because no tariff has yet been fixed by the commission. . . . .

The opinion in the case under consideration was delivered by Chief Justic Waite who spoke in the Granger Cases, and was also supported by Justices Bradley, Miller, Woods, Matthews, and Gray, of whom Bradley and Miller took part in the Granger Cases. Justices Harlan and Field dissented, and Blatchford did not sit. The dissent of Harlan, J., went on the ground that the railway charters were contracts that permitted the companies to fix their own rates unless they were shown to be unreasonable.

In Dow *vs.* Beidelman[12] a statute of Arkansas that fixed a maximum fare of three cents per mile on railroads in that state was upheld by a unanimous court. It was shown in this case that the rates fixed by statute, on the basis of the existing traffic, would yield a net yearly income of less that 1.5 per cent. on the original cost of the road and only a little more than 2 per cent. on the bonded debt. The evidence did not show, however, how much the then owners of the railway had paid for it. Justice Gray said in delivering the opinion of the court:

> Without any proof of the sum invested by the reorganized corporation or its trustees, the court has no means, if it would under any circumstances have the power, of determining that the rate of three cents a mile fixed by the legislature is unreasonable.

The dictum above quoted from Stone *vs.* Farmers' Loan and Trust Co.,[13] as to limitations on the power of states to fix conclusive rates, was repeated with approval in the case under consideration.

In neither of these two cases was it open to members of the court who did not assent to this dictum, but who did agree with the decision, to dissent from the opinion, because the principle of the dictum was not acted on in either decision. The later of these two cases was decided by eight judges, Chief Justice Waite having died at Washington, March 23, 1888.

In Chicago, Milwaukee & St. Paul Railway Co. *vs.* Minnesota,[14] the dicta put forth in previous cases that the reasonableness of rates fixed

[12] 125 U. S. 680. [13] 116 U. S. 307. [14] 134 U. S. 418.

by a state is subject to review by the courts, was established by the force of a judicial decision. This case arose under a statute of Minnesota which authorized a commission to fix transportation rates. The commission reduced the rate for carrying milk between certain points from 3 cents to 2.5 cents per gallon, and the Minnesota courts refused to admit evidence offered by the railway that the latter rate was unreasonable, holding that under the statute the findings of the commission were conclusive. From this decision the railway appealed to the federal court on the ground that the denial of a judicial hearing as to the reasonableness of the rates would deprive it of property without due process of law. Mr. Justice Blatchford delivered the opinion of the court, holding the Minnesota statute void because it made the rates fixed by the commission conclusive. In the course of this opinion the court said:

> The question of the reasonableness of a rate of charge for transportation by a railroad company, involving, as it does, the element of reasonableness, both as regards the company and as regards the public, is eminently a question for judicial investigation, requiring due process of law for its determination. If the company is deprived of the power of charging reasonable rates for the use of its property, and such deprivation takes place in the absence of an investigation by judicial machinery, it is deprived of the lawful use of its property, and thus, in substance and effect, of the property itself, without due process of law, and in violation of the Constitution of the United States; and in so far as it is thus deprived, while other persons are permitted to receive reasonable profits upon their invested capital, the company is deprived of the equal protection of the laws.

Dissent from some of the judges who decided the Granger Cases was now due. This dissent could not properly have been delivered in the earlier cases where the power of the court to review rates fixed by a state had been asserted, because those assertions were mere dicta and were not involved in the decisions of the cases where they occurred.

In the course of a long dissenting opinion, concurred in by Justices Gray and Lamar, Justice Bradley said:

> I cannot agree to the decision of the court in this case. It practically overrules Munn *vs.* Illinois, 94 U. S. 113, and the several railroad cases that were decided at the same time. The governing principle of those cases was that the regulation and settlement of the fares of railroads and other public accommodations is a legislative prerogative and not a judicial one. This is a principle which I regard as of great importance. When a railroad company is chartered, it is for the purpose of performing a duty which belongs to the state itself. It is chartered as an agent of the state for furnishing

public accommodation. The state might build its railroads if it saw fit. It is its duty and its prerogative to provide means of intercommunication between one part of its territory and another. And this duty is devolved upon the legislative department. If the legislature commissions private parties, whether corporations or individuals, to perform this duty, it is its prerogative to fix the fares and freights which they may charge for their services. . . . . But it is said that all charges should be reasonable, and that none but reasonable charges can be exacted; and it is urged that what is a reasonable charge is a judicial question. On the contrary, it is pre-eminently a legislative one, involving considerations of policy as well as of remuneration; and is usually determined by the legislature, by fixing a maximum of charges in the charter of the company, or afterwards, if its hands are not tied by contract. If this maximum is not exceeded, the courts cannot interfere. . . . . Thus, the legislature either fixes the charges at rates which it deems reasonable, or merely declares that they shall be reasonable; and it is only in the latter case, where what is reasonable is left open, that the courts have jurisdiction of the subject. I repeat: when the legislature declares that the charges shall be reasonable, or, which is the same thing, allows the common-law rule to that effect to prevail, and leaves the matter there; then resort may be had to the courts to inquire judicially whether the charges are reasonable. Then, and not till then, is it a judicial question. But the legislature has the right, and it is its prerogative, if it chooses to exercise it, to declare what is reasonable.

This is just where I differ from the majority of the court. They say in effect, if not in terms, that the final tribunal of arbitrament is the judiciary; I say it is the legislature. I hold that it is a legislative question, not a judicial one, unless the legislature or the law (which is the same thing) has made it judicial, by prescribing the rule that the charges shall be reasonable, and leaving it there. It is always a delicate thing for the courts to make an issue with the legislative department of the government, and they should never do so if it is possible to avoid it. By the decision now made we declare, in effect, that the judiciary, and not the legislature, is the final arbiter in the regulation of fares and freights of railroads and the charges of other public accommodations. It is an assumption of authority on the part of the judiciary which, it seems to me, with all due deference to the judgment of my brethren, it has no right to make. . . . . It is complained that the decisions of the board are final and without appeal. So are the decisions of the courts in matters within their jurisdiction. There must be a final tribunal somewhere for deciding every question in the world. Injustice may take place in all tribunals. All human institutions are imperfect—courts as well as commissions and legislatures. Whatever tribunal has jurisdiction, its decisions are final and conclusive unless an appeal is given therefrom. The important question always is, what is the lawful tribunal for the particular case? In my judgment, in the present case, the proper tribunal was the legislature, or

the board of commissioners which it created for that purpose. . . . . It may be that our legislatures are invested with too much power, open, as they are, to influences so dangerous to the interests of individuals, corporations, and society. But such is the constitution of our republican form of government; and we are bound to abide by it until it can be corrected in a legitimate way. If our legislatures become too arbitrary in the exercise of their powers, the people have always a remedy in their hands; they may at any time restrain them by constitutional limitations.

This strong dissent, in 1889, gives a glimpse of the conflict that had been going on in the Supreme Court since the decision of the Granger Cases, in 1876. As far as can be seen from the line of decisions noted, only two of the seven judges who decided those cases ever receded from the position there taken that the court could not review the reasonableness of rates fixed by a legislature. Of these two judges, Waite indicated his change of view by the dictum above quoted from Stone *vs.* Farmers' Loan and Trust Co., and Miller concurred in the majority decision of the Minnesota case just considered, by a separate opinion.

As new judges came onto the Supreme Bench, the support given by the court to the principles of the Granger Cases grew less. In Chicago, etc., Railway Co. *vs.* Minnesota[15] the scales were turned and five justices—Fuller, Field, Harlan, Blatchford, and Brewer—supported the majority opinion. Of the nine judges who sat in the Granger Cases only Justices Field, Miller, and Bradley remained to take part in the case last decided, and of these three Justice Bradley alone adhered to the fundamental doctrine of the earlier decisions.

By Chicago, etc., Railway Co. *vs.* Minnesota[16] the Granger Cases were in large measure overruled. Due process of law was no longer to be found in rates fixed by states, but in decisions of the court as to what was reasonable. Under this decision the states may exercise as much or as little control over rates as the court sees fit to permit. In Munn *vs.* Illinois[17] the court said:

The controlling fact is the power to regulate at all. If that exists, the right to establish the maximum of charge, as one of the means of regulation, is implied.

With equal force it may be said that assertion by the court of authority to review the reasonableness of rates fixed by legislatures opened the way for a great reduction in state powers. Since 1889, when the paramount authority of the court was established by a judi-

[15] 134 U. S. 418. [16] 134 U. S. 418. [17] 94 U. S. 113.

cial decision, suits to invalidate rates fixed by legislatures have multiplied and decisions have borne with increasing severity on state powers.

In Budd *vs.* New York, decided in 1892, the validity of a statute of that state was contested on the ground that rates fixed by it for elevating and storing grain were not within the state power to make and were unreasonable. Mr. Justice Blatchford in delivering the opinion of the court, supported the power of the state to regulate the business of storing grain and said:

> In the case before us, the records do not show that the charges fixed by the statute are unreasonable, or that property has been taken without due process of law, or that there has been any denial of the equal protection of the laws; even if under any circumstances we could determine that the maximum rate fixed by the legislature was unreasonable.

It was also said in this opinion, referring to Chicago, etc., Railway Co. *vs.* Minnesota:

> What was said in the opinion in 134 U. S., as to the question of the reasonableness of the rate of charge being one for judicial investigation, had no reference to a case where the rates are prescribed directly by the legislature.

This statement was *obiter dicta*, pure and simple, as the rates in Budd *vs.* New York were not shown to be unreasonable, was in direct conflict with the language of the Minnesota case and no support for it can be found in later decisions. Morever, the three dissenting judges in the Minnesota case certainly understood the decision there to apply to rates fixed directly by a legislature as well as to those fixed by a commission. It is to be noted that the Minnesota statute itself, as construed by the Supreme Court of that state, was declared invalid by the United States Supreme Court, and not merely the rates fixed under the statute. This statute evidently failed because it denied the right of the courts to investigate the reasonableness of rates fixed under it.

As to reasonable rates Budd *vs.* New York[18] simply shows that their unreasonableness must be proved before the court will hold them void on that ground. Justices Brewer, Field, and Brown dissented in this case.

Brass *vs.* North Dakota[19] involved the validity of a statute of that state that fixed rates for storing grain. The case turned on the power of the legislature to fix rates at all, rather than on the reasonableness of the rates actually fixed. The court upheld the statute, and said in its opinion, delivered by Justice Shiras:

[18] 143 U. S. 517. [19] 153 U. S. 391.

We are limited by this record to the questions whether the legislature of North Dakota in regulating by a general law the business and charges of public warehousemen engaged in elevating and storing grain for profit, denies to the plaintiff in error the equal protection of the laws or deprives him of his property without due process of law, and whether such statutory regulations amount to a regulation of commerce between the states.

Justices Brewer, Field, Jackson, and White dissented, leaving only Fuller, C. J., and Justices Harlan, Gray, Brown, and Shiras to decide the case.

In Chicago & Grand Trunk Railway *vs.* Wellman,[20] decided a few months earlier than Budd *vs.* New York, the court upheld a law of Michigan regulating railway rates, and said:

The legislature has power to fix rates, and the extent of judicial interference is protection against unreasonable rates. . . . . Surely before the courts are called upon to adjudge an act of the legislature fixing the maximum passenger rates for railroad companies to be unconstitutional, on the ground that its enforcement would prevent stockholders from receiving any dividends on their investments, or the bondholders any interest on their loans, they should be fully advised as to what is done with the receipts and earnings of the company; for if so advised, it might clearly appear that a prudent and honest management would, within the rates prescribed, secure to the bondholders their interest, and to the stockholders reasonable dividends.

The opinion delivered by Justice Brewer in this case clearly upholds the doctrine of Chicago, etc., Railway Co. *vs.* Minnesota, that the court has power to review the reasonableness of rates fixed by a legislature.

Reagan *vs.* Farmers Loan and Trust Co.[21] furnished another application of the same doctrine by restraining the railway commission of Texas from enforcing rates fixed under a statute of that state. The statute provided that rates fixed under it were to be deemed reasonable until finally found otherwise in a direct action, but enforcement of the rates fixed was enjoined before their reasonableness was determined by evidence, in spite of the language of the statute. In the opinion of the court, delivered by Justice Brewer, affirming the preliminary injunction and holding the rates unreasonable and void, it was said:

Is there anything which detracts from the force of the general allegation that these rates are unjust and unreasonable? This clearly appears. The cost of this railroad property was $40,000,000; it cannot be replaced today for less than $25,000,000. There are $15,000,000 of mortgage bonds outstanding against it, and nearly $10,000,000 of stock. These bonds and stock

[20] 143 U. S. 339. [21] 154 U. S. 362.

represent money invested in the construction of this road. The owners of the stock have never received a dollar's worth of dividends in return for their investment. The road was thrown into the hands of a receiver for default in payment of the interest on the bonds. The earnings for the last three years prior to the establishment of these rates was insufficient to pay the operating expenses and the interest on the bonds. In order to make good the deficiency in interest the stockholders have put their hands in their pockets and advanced over a million of dollars. The supplies for the road have been purchased at as cheap a rate as possible. The officers and employees have been paid no more than is necessary to secure men of the skill and knowledge requisite to suitable operation of the road. By the voluntary action of the company the rate in cents per ton per mile has decreased in ten years from 2.03 to 1.30. The actual reduction by virtue of this tariff in the receipts during the six or eight months that it has been enforced amounts to over $150,000. Can it be that a tariff which under these circumstances has worked such results to the parties whose money built this road is other than unjust or unreasonable?

It may be suggested that the decision in this case rested on the provision of the Texas statute that suits might be brought to determine the reasonableness of rates fixed by the commission. This view cannot be maintained, however, because the statute expressly provided that rates so fixed should be deemed reasonable until finally found otherwise in an action brought by the dissatisfied party, and that in such actions "the burden of proof shall rest upon the plaintiff, who must show by clear and satisfactory evidence that the rates, regulations (etc.), complained of are unreasonable and unjust." The case in which the injunction restraining the commission from enforcing the rates in question was granted came up to the Supreme Court on demurrer by the commissioners and the attorney-general to the complaint of the Trust Co., so that there was no hearing on the merits as the statute required. In deciding the case the court went on the broad ground that it had power to determine whether rates fixed by states were reasonable. This was shown by the statement in the course of the opinion

> that no legislation of a State, as to the mode of proceeding in its own courts, can abridge or modify the powers existing in the Federal courts sitting as courts of equity.

And also that there could be

> no doubt of their power and duty to enquire whether a body of rates prescribed by a legislature or a commission is unjust and unreasonable, and such as to work a practical destruction to rights of property, and if found so to be, to restrain its operation.

The court modified the force of its decision by the statement that

It is unnecessary to decide, and we do not wish to be understood as laying down as an absolute rule, that in every case a failure to produce some profit to those who have invested their money in the building of a road is conclusive that the tariff is unjust and unreasonable. . . . . There may be circumstances which would justify such a tariff; there may have been extravagance and needless expenditure of money; there may be waste in the management of the road; enormous salaries, unjust discrimination as between individual shippers, resulting in general loss. The construction may have been at a time when material and labor were at the highest price, so that the actual cost far exceeds the present value; the road may have been unwisely built, in localities where there is no sufficient business to sustain a road. Doubtless, too, there are many other matters affecting the rights of the community in which the road is built as well as the rights of those who have built the road.

Evidently this case decides only that under the circumstances stated a road is entitled to earn interest on its bonds and something for its stockholders, besides paying necessary operating expenses. How much the return to stockholders may be is not decided. As no evidence was taken, it does not appear how the court knew that the failure of the road to earn "some profit" was not due to some of the "matters" named above.

In the case just considered and also in that of St. Louis & San Francisco Railway *vs.* Gill,[22] decided during the same year, 1894, there was no dissent, but the entire court concurred in the opinion. These two cases present interesting comparisons, as the railway company in each sought protection from a law for the regulation of rates, and each alleged in its pleadings that the rates fixed for transportation would yield no profit on the invested capital, and each case was decided on demurrer.

The case of St. Louis & Santa Fé Railway *vs.* Gill came up under a law of Arkansas, passed in 1887, that fixed a maximum rate of three cents per mile for the transportation of passengers on railroads of that state, and named a penalty of $300 payable to any passenger from whom an overcharge was exacted. Gill was charged five cents per mile and obtained a verdict in the state courts against the railway for the amount of the penalty. The railway took the case to the Supreme Court on the ground that the rate fixed by statute would result in a taking of its property without due process of law. Proof was offered for the railway that on the branch where Gill was charged five cents per mile the actual cost to the railway was 3.3 cents per mile for each passenger carried; that this branch line had never earned more than

[22] 156 U. S. 649.

1 per cent. annually above actual operating expenses on the capital stock that had been paid in cash and invested in this line. These offers of proof were not accepted, and the demurrer of Gill to the pleadings of the railway was sustained by the court in an opinion sustaining the validity of the rates fixed by the Arkansas law. The opinion, delivered by Justice Shiras, took occasion to assert the power claimed in previous cases, by saying:

> This court has declared, in several cases, that there is a remedy in the courts for relief against legislation establishing a tariff of rates which is so unreasonable as to practically destroy the value of property of companies engaged in the carrying business, and that especially may the courts of the United States treat such a question as a judicial one, and hold such acts of legislation to be in conflict with the Constitution of the United States, as depriving the companies of their property without due process of law, and as depriving them of the equal protection of the laws.

The line of railway on which Gill was charged five cents per mile, and to which the offers of proof seemed to refer, extended from the northern boundary of Arkansas to Fayetteville in that state, and had formerly been owned by a separate company. Referring to these circumstances the court said:

> In this state of facts we agree with the views of the supreme court of Arkansas, as disclosed in the opinion contained in the record, and which were to the effect that the correct test was as to the effect of the act on the defendant's entire line, and not upon that part which was formerly a part of one of the consolidating roads; the company cannot claim the right to earn a net profit from every mile, section, or other part into which the road might be divided.

Finally came the important statement that

> Even if the evidence could be understood as applicable to the entire line in Arkansas, there was no finding of the facts necessary to justify the courts in overthrowing the statutory rates as unreasonable, but that, on the contrary, the company's case depended on allegations admitted by the demurrer of a party who, in no adequate sense, represented the public.

This case seems to represent an effort of the court to stay the tendency of former decisions toward the destruction of state power in the regulation of rates. It is hard to see why the rates on a distinct line of railway should not be regulated according to the investment and expense of operation on that line, even though the line in question forms only a part of a large consolidated system.

The demurrer by a private litigant as a barrier to judicial annulment of rates fixed by legislatures did not stand the test of the next

case on the subject that came before the court, namely, Covington, etc., Turnpike Co. *vs.* Sandford.[23] By an act of the Kentucky legislature in 1890 the rate of toll that might be charged on the turnpike owned by the company just named was reduced. Sandford obtained an injunction in the state courts which required the turnpike company to charge no more than the statutory rate of toll. From this injunction the company sought relief in the Supreme Court on the ground that the reduction in rates would take its property without due process of law. In the decision of the Supreme Court, prepared by Justice Harlan, it was said that the answer of the company

> alleged that the receipts for the several preceding years had not admitted of dividends greater than 4 per cent. on the par value of the company's stock; that the act of 1890 reduced the tolls 50 per cent. below those allowed by the act of 1865; and that such reduction would so diminish the income of the company that it could not maintain its road, meet its ordinary expenses, and earn any dividends whatever for stockholders.
>
> These allegations were sufficiently full as to the facts necessary to be pleaded, and fairly raised for judicial determination the question — assuming the facts stated to be true — whether the act of 1890 was in derogation of the company's constitutional rights. It made a *prima facie* case of the invalidity of that statute.

This opinion reversed the action of the Kentucky courts which granted the injunction, though no evidence was before the court that the allegations of the company in its pleadings were true. Sandford acted in this case simply as a private person who wished to use the turnpike, and the admissions of his demurrer to the pleadings of the company were held sufficient ground on which to overturn the statute. The previous decision in the Gill case that a statute cannot be held invalid on the demurrer of a private person was thus overruled. Admitting the statements in the pleadings of the company in this Sandford case to be true, the case simply follows the rule previously laid down that rates cannot be reduced to a point where they allow no return on the investment above operating expenses. This case, decided in 1896, was concurred in by the entire court. Though not required for the decision of the case, it was stated in the course of the opinion that

> It cannot be said that a corporation is entitled, as of right, and without reference to the interests of the public, to realize a given per cent upon its capital stock. When the question arises whether the legislature has exceeded its

[23] 164 U. S. 578.

constitutional power in prescribing rates to be charged by a corporation controlling a public highway, stockholders are not the only persons whose rights or interests are to be considered. . . . . If a corporation cannot maintain such a highway and earn dividends for stockholders, it is a misfortune for it and them which the constitution does not require to be remedied by imposing unjust burdens upon the public.

These dicta indicate that there might be instances due to unwise investments, or perhaps to competition, where a corporation would not be protected in a right to earn any return on its investment.

The next case to come before the court involving the reasonableness of rates fixed by state authority was that of Smyth *vs.* Ames, decided in 1898.[24] A notable difference between this case and those that had preceded it lay in the fact that the decision of the court was based on evidence taken at the trial as to the investments and earnings of the railways involved, instead of on allegations or admissions of parties to the suit. The case arose under a Nebraska statute of 1893, that prescribed rates for the transportation of freight on railways in that state, by a prayer on the part of persons interested in these railways for an injunction to prevent enforcement of these rates. In a unanimous opinion, delivered by Justice Harlan, the court said:

We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in such case.

We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth. But even upon this basis, and determining the probable effect of the act of 1893 by ascertaining what could have been its effect if it had been in operation during the three years immediately preceding its passage, we perceive no ground on the record for reversing the decree of the circuit court. On the contrary, we are of opinion that as to most of the companies in question there would have been, under

[24] 169 U. S. 466.

such rates as were established by the act of 1893, an actual loss in each of the years ending June 30, 1891, 1892, and 1893; and that, in the exceptional cases above stated, when two of the companies would have earned something above operating expenses, in particular years, the receipts or gains, above operating expenses, would have been too small to affect the general conclusion that the act, if enforced, would have deprived each of the railroad companies involved in these suits of the just compensation secured to them by the Constitution.

The injunction confirmed by the court in this case enjoined the Nebraska Board of Transportation and the attorney-general of the state from taking any steps to enforce the rates fixed by the act of 1893. It should be noted that the court based its decision on the income that would have been derived from the local freight actually carried by the railways during the fiscal years of 1891, 1892, and 1893, ending June 30, at the rates prescribed by the act which took effect August 1, 1893. This takes no account of the fact that a decrease in rates may be followed by an increase in traffic, especially as to heavy farm produce which it may not pay to move at all if the freight is more than a very moderate figure.

The most important rule laid down by the case is that the basis of calculations as to reasonable rates of a corporation "must be the fair value of the property being used by it for the convenience of the public."

This statement with others in the opinion, appears to limit "fair value" to that of the physical property and to exclude franchise valuations. Unless the value of the physical property employed in a public service and the actual cost of performing that service are to be taken as the basis of rate calculations, the amount of rates would appear to depend mainly on the arbitrary opinion of the company or legislature making them. Though the majority of the railways in Nebraska could have made nothing on their investments under the rates prescribed by the act of 1893, as the court understood the evidence, yet the opinion states that two companies could have earned "something" above operating expenses. Reference to the evidence on which the court relied, and which was repeated in the opinion, shows that this something amounted to 1.99, 4.06, 6.84, and 10.63 per cent. annually on the values of the railways. Unless the court thought that this rate of net earnings was so small as to amount to a taking of property without due process, it does not appear why the Nebraska act was unconstitutional as to the roads making this rate. According to dicta in the Sandford

case above cited, an act might be constitutional as to some roads and unconstitutional as to the others.

A still later case in the Supreme Court, that of Cutting *vs.* Goddard, decided in 1901, goes farther than any of the foregoing in its limitation of state powers. This case arose under a Kansas statute of 1897 that fixed charges for handling live stock at stock yards where more than a certain amount of business was done, and affected the yards at Kansas City. Petitions were filed asking that the attorney-general of Kansas be restrained from enforcing the statute as to these yards, and, after hearings in which evidence was taken as to the value of the yards and the annual earnings, the injunction was granted. In the course of the unanimous opinion of the court, delivered by Justice Brewer, it was said:

> If the rates prescribed by the Kansas statue for yarding and feeding stock had been in force during the year 1896, the income of the stock-yards company would have been reduced that year $300,651.77, leaving a net income of $289,916.96. This would have yielded a return of 5.3 per cent. on the value of the property used for stock-yard purposes, as fixed by the master.

The actual net income of the company during 1896, as found by the master and the court below, was $590,558.73, and the value of its property in the stock yards was $5,388,003.25, so that its net income during that year amounted to nearly 11 per cent. on its investment. After pointing out the liability of a person engaged in the operation of public stock yards to some legislative regulation, the court proceeded to define the limits of such regulation, and said:

> The question is not how much he makes out of his volume of business, but whether in each particular transaction the charge is an unreasonable exaction for the services rendered. He has a right to do business. He has a right to charge for each separate service that which is reasonable compensation therefor, and the legislature may not deny him such reasonable compensation, and may not interfere simply because out of the multitude of his transactions the amount of his profits is large.

These reasons for the decision of the court are negative in character. They tell us that it matters not that profits are large if rates are only reasonable. But what are reasonable rates? How are they to be determined if considerations as to investments and profits are put aside? If reasonable rates do not imply reasonable profits, where is the amount of charge to stop short of what the person receiving the service can be induced to pay?

A quarter of a century has transferred the test of reasonable rates from the opinions of state legislatures to the opinion of the Supreme Court. In the Granger Cases the court denied its right to interfere with local rates fixed by legislatures, even when these rates were so low as to destroy all profits. This doctrine, after various adverse dicta, was fully repudiated by the case of Chicago, etc., Railway Co. *vs.* Minnesota, decided in 1889, thirteen years after the Granger Cases. From that date to 1896, when Covington, etc., *vs.* Sandford was decided, the court went no farther than to hold that legislative rates must afford some income above operating expenses. Another step was taken the following year, when the court held in Smyth *vs.* Ames that rates which permitted a net profit of as much as 10.63 per cent. on one road, but nothing on others, could not be enforced as to either.

Finally, in 1901, comes the decision, in Cutting *vs.* Goddard, that rates which yield a profit of 10.9 per cent. on the investment are not unreasonable, and that rates which would reduce this profit to 5.3 per cent. are unconstitutional.

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NOTES.

INDUSTRIAL BUCCANEERING.

In view of recent disclosures, it is pertinent to ask whether there is in present dealings of organized labor with organized capital evidence of a decline in respect felt for common honesty. There is undoubtedly a deep-seated and widespread conviction — not well grounded in statistics, it may be, but none the less firmly established for that — that our industrial system works injustice to the producers of wealth. This feeling is one which easily degenerates into a dangerous sort of cynicism which condones dishonest practices in general, and accepts as a matter of course a low standard of business ethics. Industrial combinations of labor and capital today are rapidly acquiring new powers and are exercising more extensively control over individual conduct. So that the individual worker and the individual employer feels the pressure brought to bear upon him as never before. It is therefore of greater social consequence than ever before that these organizations shall maintain unimpaired their character for honesty.

The economist commonly assumes that there are at work in the community certain economic laws in accordance with which the product of industry tends to be justly apportioned among those who produce it. It is a significant fact that trade unionist and capitalist alike, today, where they do not deny the existence of such laws altogether, commonly ignore their action, regarding them as being of purely speculative interest and of no practical consequence. The success of organized labor in forcing up wages in certain industries is often cited in justification of the belief that wages in general depend in last analysis not upon economic efficiency or productivity of labor, as economists are wont to suppose, but upon skilful manipulation of the labor supply. The lie, it is thought, is thus given to economic science.

In all this there is, of course, considerable misapprehension, since the economist has never been disposed to deny that in certain industries wages may depend upon manipulation of supply rather than upon economic efficiency, but only concerned to point out that the

whole product of industry out of which wages are paid cannot be increased by "manipulation;" that manipulation is just as reprehensible here as it is when resorted to for the purpose of gaining any species of illegitimate profits; that the wages manipulated into the pockets of one industrial group are just as certainly manipulated out of the pockets of another. Where wages are "manipulated" unorganized labor and the public foot the bill. A fair rate of wages is no more likely to result from "manipulation" than is a "fair" rate of profits.

The question what constitutes a fair rate of wages and of profits presents practically no theoretical difficulties. The theory of distribution which is based upon the institution of private property is a simple one and one which is very generally accepted by economists, wage-earners and wage-payers alike. There is, it is true, a theoretical issue raised by those who would radically modify the institution of private property itself. Both unionism and capitalism, however, stand for a division of the product of industry into wages and profits, and for the payment of fair wages under capitalism, not for a new industrial régime where property rights shall be based upon radically different principles.

While accepting the industrial régime as a whole, the trade-unionist is, nevertheless actively demanding as fairly his due a larger share in the product, and this larger share he proposes to get, not by the cultivation or exercise of greater economic efficiency, but in any way he can — by the process of collective "higgling," or bargaining, or fighting for it, or by legislating it into his pockets — on the general assumption that he is probably entitled to more than he can get in any way by fair means or foul. The employer is in much the same state of mind. In opposing unionism he is determined to resist what he regards as unreasonable demands, and he is naturally disposed to consider most demands unreasonable which interfere with his profits or dividends. In a word, the conception of "fairness" is a perfectly elastic and indeterminate one as regards wages and profits.

But the significant fact is that neither party professes to act in accordance with any preconceived theory, or law, or abstract principle whatever. The program of industrial combination is rather a denial that wages and profits are in fact regulated by any such law. The distribution of the product of industry is conceived to be effected by higgling and in the last resort by an exercise of violence. For the trade-unionist there is no economic law of wages. The whole

product of industry is before him, and whether he gets a lion's share or not will, he believes, rightly or wrongly depend largely not upon his economic efficiency, but upon judicious and timely display of lion-like qualities. For the employer there is likewise on law of profits; or, rather, the law of wages and profits is the law of the jungle — to take what one can appropriate with impunity.

This appeal to force requires some explanation, and the conclusion appears almost incontrovertible that the disregard of economic principles of justice arises from changed conditions in certain great industries, which have brought it about that a larger portion of the gains in these industries are economically indeterminate; that is to say, they are a sort of profits to which neither labor nor capital employed in these industries can assert a just claim. The perfection of organization has in those industries given a new aspect to the distribution problem. In its new form the distribution question is not "How shall we apportion among ourselves the product of our own labor and capital?" but "How much of the product of labor and capital in other industries can we, who are well organized, abstract from the community's total output, and apportion to ourselves as pseudo-wages and pseudo-profits?" When a pool of building contractors, for example, and of labor unions in the building trades is formed, and at Christmas or any other time a 20 per cent. "rake-off" on the year's contracts is disbursed under a compact to which both labor and capital are parties, that is not an apportionment of legitimate product, but rather of spoils gained by a species of industrial privateering. To contend that the question here is one of determining what is a fair rate of wages and of profits is pure hypocrisy. It is simply a question of determining the utmost extent to which the public can be systematically exploited.

Any organization, either of labor or of capital, which enters into such a conspiracy, is clearly dishonest, and individuals who are parties to such agreements have sacrificed all claims to any other consideration than such as is accorded criminals generally. In view of recent developments, it is quite unnecessary to detail evidence that such combinations and pools of "rake-offs" exist very generally. A significant fact is that no unambiguous protest issues against them from organized labor. On the contrary, organized labor today, far from demanding that evils and wrongs be corrected, is demanding that it shall be taken into co-partnership that it may enjoy the gains accruing from such alliances. The mouth of labor is thus effectually

stopped. Clearly in the apportionment between labor and capital of monopoly gains no economic law applies. Industrial privateering is not legitimate business, and those who are engaged in it are perfectly justified in believing that economic laws are here in abeyance. The rightful claimants to the product of industry have been dispossessed, and the apportionment must be made in accordance with some other principles than those of economic justice. Such gains, whether due to combinations of labor, or of capital, or both in certain industries, are indeterminate. In the apportionment of them, appeal must be made to force, not to economic law, This is not, however, as is sometimes declared, any impeachment of economic science or teaching, but rather of industrial honor. Economics is not a science of industrial bucaneering.

JOHN CUMMINGS.

THE STUDY OF COMPARATIVE LEGISLATION.

I.

COMPARATIVE legislation may be considered either as a science or as a method in the study of various political and social sciences. It is a method of study in much the same sense in which history and statistics are methods rather than distinct sciences; but it has a better claim than either of these to the name of science. The historian collects and comments upon facts which have happened in past time; the statistician collects, classifies, and comments upon facts which are adapted to quantitative presentation; and neither the accident of having happened in past time nor the accident of quantitative treatment necessarily gives to the body of knowledge so brought together the unity required to make it a science. If history and statistics have sometimes approached the status of true sciences, it has been due, not to any fundamental unity in the facts presented, but rather to the labors of a few individual philosophers whose exceptional genius has enabled them to elaborate separate and more or less disjointed facts into harmonious systems of philosophy. But comparative legislation is a science in its own right; for it deals primarily with phenomena of a single kind — legislation; and it is demonstrably capable of being developed into a systematic body of knowledge possessing a high degree of logical unity. Indeed, its unity is so great that the science is not difficult to classify. As it deals with legislation, it is a political science. But as politics itself

can scarcely be separated from economics and sociology, so comparative legislation is in some of its phases as much economic or social as it is political in the strict sense of the word.

To the specialist, comparative legislation, like statistics or history, is a method for the study of his particular hobby; and wthout it any of the political or social sciences is like a two-legged stool. Unlike statistics (if not unlike history also), it can be applied only to departments of knowledge having a political or social bearing; that is, to those sciences which are of importance to the public as a whole rather than to individuals. Thus while statistics may be used by the biologist in recording variations, or by the pathologist in studying disease, comparative legislation is of use only in studying questions which are affected by laws of human orgin. It can be used by the physician in the study of public hygiene, but not in the study of individual cases. Within the field of political and social science, however, every department of knowledge must take account of legislation; and comparative legislation is not only useful to the scientist as such, but it is of equal importance to practical men of affairs — to legislators, public administrators, practicing lawyers, business men, reformers, philanthropists of every kind. There is no social science of practical importance to a larger number of individuals, and none which may be made of greater importance to the public welfare.

II.

There is a large department of inquiry to which many names and various methods have been applied, in which the comparative study of legislation is of paramount importance, and yet which has in the past been given over mainly to speculation. The primary subject of inquiry is: What are the proper functions of government? The political philosophers have sought to answer this question out of their subjective conceptions of the nature of the state; and both the classical economists and the socialists have followed their example, employing also some superficial observations upon the functions actually undertaken by certain governments, and upon the state of society in general, but reaching diametrically opposite conclusions. It is only by means of a comparative study of legislation that science will be able to arbitrate between *laissez-faire* and socialism. The question of governmental functions is a pre-eminently practical problem, which is not capable of solution by *a priori* methods, or without a careful consideration of actual facts and circumstances. Political

philosophy was the metaphysical stage in the development of a potential science which still awaits the systematic study of comparative legislation in order that it may grow to the status of a full-fledged science.

The French political philosophy of the eighteenth century found expression in the dictum that "that government is best which governs least;" or, in other words, that the very best of all plans of finance is to spend little, and the best of all taxes is that which is least in amount.[1] A narrow and distorted view, certainly, though easily explainable in the light of the legislation actually in force in France and some other countries at the time it was formulated. How much grander was the ideal of our own forefathers, as soon as they began to free themselves from the traditions and influence of the French philosophy: "The aggregate happiness of mankind is, or ought to be, the end of all government."[2] It is noteworthy that this doctrine was announced by the Father of his Country — a man little versed in the subtleties and platitudes of political philosophy, but a practical man and leader of men, typical of the best class of Americans of his day, and so representative of the whole people that in the newborn republic he was twice elected president without opposition, and might almost have been king for life. It is noteworthy also that the Constitutional Convention conferred upon the Congress power to "provide for the general welfare." Thus, in spite of the influence of the French philosophy, and notwithstanding the individualism which is supposed to characterize the typical American, the principles upon which our government was founded were rather nearer to socialism than to *laissez-faire*.

Half a century after Washington even the economists and political philosophers began to accept the broader view. John Stuart Mill, in his later years more especially, may be said to mark the turning-point in economic thought, he was the first great economist to announce such radical views as that —

> In the particular circumstances of a given age or nation, there is scarcely anything, really important to the general interest, which it may not be desirable, or even necessary, that the government should take upon itself.[3]

The modern German view would appear to be that, when a new service is to be performed, the presumption is in favor of its being undertaken by the state or municipality; and a similar doctrine

[1] J. B. Say. [2] Washington.

[3] *Principles of Political Economy*, Book V, chap. 11.

is accepted by Professor Ely, though not without an important qualification:

> If government is as honest and competent as the society it represents; the greater the proportion of public to private expenditure which can be permanently maintained, the better.[4]

Where the government is somewhat more honest and competent than the governed, this principle assumes increased weight, and becomes in some cases a safe working hypothesis; for under such circumstances taxation is a system of enforced saving for such essential purposes as schools, roads, and public order, which the taxpayers might not have the requisite prudence, initiative, and self-control to provide for themselves.[5]

If the proper extent of governmental activity is something to be regulated according to place and circumstance, and requires a study of actual experience for its determination, the same is even more true of the directions which such activities should take, and the manner of their performance; yet we have no comprehensive study of the work of governments in general upon which to base a conclusion. The most useful utterances upon these questions are those of certain economists, which, though expressed as if *a priori*, are really based upon a considerable knowledge of governments and their activities. For example, President Walker's essay on *Socialism* might well be taken as the starting-point in the development of a science of public functions. Writers on finance have usually neglected the opportunity open to them in the subject of public expenditures (which must be of even greater importance than the means of meeting them), for they have either passed by the subject altogether or have dismissed it with a few platitudes and statistics; but there are two or three exceptions, not the least notable of whom is Professor Adams, who combines philosophy with a practical knowledge of affairs in such a way as to make his opinions convincing. That the activities of government must depend upon circumstances is well illustrated by a few meaty extracts from his *Science of Finance:*

> It is futile to urge disarmament, and the consequent extinction of the military budget, so long as there continues to be a conflict of legal ideas.
>
> It is essential for the modern state to support public instruction, because there is no other way to guard against the fading of its own ideals through the rise of an aristocracy of learning.

[4] *Outlines of Economics.*

[5] For the formulation of this principle I am indebted to Hon. William F. Willoughby.

A local government may very properly enter upon a more comprehensive line of activities than the national government, since the more restricted the territory over which a government has jurisdiction, the greater likelihood will there be of community of interests among its citizens.

Here, then, is an opportunity for the development of a new science, of which only the rudest outlines have yet been drawn — a science which shall determine the right limits, directions, and modes of government action under given conditions by a comparative study of the results of such action under all conditions. It must be much more than a digest of statute law, but as the everyday activities of government are based upon legislation, it must begin with the statutes and the motives which led to their enactment, and proceed thence to a study of their interpretation, of their actual administration, and of their effects. When similar laws are found to have widely different results in different countries, a reason must be found for the difference; and thus certain laws of cause and effect may be established which may be woven together into a system of philosophy having a firmer basis than any political philosophy thus far known. Such a science would find its precepts heeded by legislators and public officials, and would influence the work of governments more than all other sciences and systems of philosophy combined.

The possibility of creating such a science has not been entirely overlooked, but the necessary materials have been lacking, and the labor of collecting and digesting them has been far too great for any one man to undertake. The subject-matter of the proposed science is taught after a fashion in some universities under the name of "administration;" but administration is really only a part of the subject, and it might with equal propriety be called "legislation." In other universities and colleges it is taught as "practical political economy," or sprinkled into a general course in economics or political science; and, indeed, neither science is complete without it. If economics had been intended to be a science of private wealth and the satisfaction of individual wants, it would never have been called "political economy," and economists would care nothing for *The Wealth of Nations.* That some economists should devote themselves to psychological theories of value, or other phases of the individual economy, is a natural enough instance of differentiation; but the differentiation in this case has been a little one-sided. There have not been lacking detached studies of certain phases of the public economy, but their claim to constitute a science has not been widely

recognized among the economists; yet it cannot be denied, unless upon the grounds of the magnitude of the subject and the incompleteness of the materials. Finance, etymologically if not otherwise logically or reasonably, has devoted itself to the problem how to pay the bills of governments, without much regard to what they are incurred for; and so has left between itself and economics (as the word is now understood) a gap which can be filled only by a new science of government activities.

Professor Folwell has twice urged before the American Economic Association a division of economics into "private economy" and "public economy," which he has long employed in the classroom;[6] and the division has been adopted by Professor Ely in his most comprehensive text-book.[7] "Private economy" may not be the most appropriate name to apply to the social science which treats of the industrial organization of society,[8] though it does very well for the theory of value; but "public economy" certainly expresses the idea intended; and the line between the two is no harder to draw than the line between economics and politics, with which, indeed, it may be said to coincide.

Professor Moses deplores the tendency to take account of all the factors concerned in an economic problem, as a retrograde movement away from the differentiation of sciences. The broad field which Adam Smith attempted to cover, he says, is not a science at all, but the Art of social control.[9] Is this an admission that the art of social control has as yet no scientific basis? Or must those who would practice this art first master all the social sciences, and then construct their own social philosophy? Professor Ross has written a little book on *Social Control,* intended as a contribution toward enabling society "to go about the business of control in a scentific way:" but while it demonstrates the possibility of systematizing the subject, it is too subjective and metaphysical to be of much practical value as a guide. The science of social control, or public economy, still exists only in the clouds of speculation; it must needs be brought down to earth before it can greatly influence the corresponding art, or indeed become truly scientific.

[6] *Publications of the American Economic Association,* Vol. IV, No. 5, and Vol. VIII, No. 1.

[7] *Outlines of Economics.*

[8] "Industrial Economy" would be a more appropriate name.

[9] *Quarterly Journal of Economics,* Vol. XI (1897).

Men who have made no special study of social control, either in theory or in practice, are frequently called, sometimes through no fault of their own, to administrative or legislative posts where they must practice the art as best they may. When this happens, the novice feels the need of a handbook which he could master on his way to Washington or San Juan or Manila. After reaching his post, his desire is for a treatise of sufficiently encyclopedic dimensions to solve the knotty problems of detail as they arise day by day. Either of these requisites is difficult to meet satisfactorily; but the universities might at least offer courses in public economy which would be useful to the increasing numbers of their students who find themselves in the public service after graduation, with only a theoretical and decidedly inadequate preparation, and having only the most general notions regarding the work done by their own government. Statutes and public documents make excellent materials for the seminar. In view of the pressing need for trained men in public life, it would seem that the state universities especially should take up the work of training for public service; work of this kind would soon more than pay for itself in the increased economy and efficiency of public administration.

III.

For the study of comparative legislation societies have been organized and journals established in the most important countries of Europe, but America is strangely behindhand in this respect. There is no country on the face of the globe where the study of comparative legislation is so much needed, or where the natural conditions for it are so favorable, as in the United States, for here we have some fifty legislatures, spread well over the face of the earth, making laws in the same language, but under a great variety of local conditions. The New York State Library, thanks to the initiative genius of Melvil Dewey and the skill of Messrs. Shaw, Durand, and Whitten, has made an important beginning toward the organization of the current output of the commonwealth legislatures into a systematic body of condensed information; to the annual index are now added an annual review of legislation by various specialists, an annual digest of governors' messages, and occasional monographs, all of which increase the availability of the material. There is great need for a corresponding service digesting the legisla-

tion of other countres, existing and current; for there is neither any comprehensive source of information concerning such legislation, nor any complete collection of the laws themselves available to American students. Dr. Herbert Putnam, librarian of Congress, included in his estimates for the present fiscal year an item of $28,000 for an index to comparative legislation, to be published in a monthly bulletin, with an annual summary, references to articles in scientific journals, and contributions by foreign correspondents, but although such an index would be of incalculable value both to Congress and to private students, the proposal was omitted from the appropriation bill. The economists and political scientists have only themselves to blame for this unfortunate outcome, for if they had awakened to the importance of the project in time to make themselves heard in the matter, there would have been no great difficulty about securing the appropriation. It is to be hoped that when the project is renewed, greater interest will be taken in it both in and out of Congress.

A government publication could not be expected to comment freely upon legislation; its province would be to assemble the materials upon which students might base their own conclusions. The government index or digest would leave room for a voluntary organization for the discussion of comparative legislation, and would indeed be almost essential to the successful working of such a society. While Mr. Putnam's proposal was before Congress, a movement for the organization of a society of comparative legislation assumed form, first in a conference called at Washington, December 30, 1902, to discuss the question, and then in the appointment by that meeting of a representative committee of fifteen to confer with the representatives of existing societies and present a plan of organization. The scope of the proposed organization was broadened at the conference to include political science and political philosophy, as well as comparative legislation. The desirability of some such organization was admitted on all hands; but it was not so easy to agree as to whether it should be a new and independent society or a section of one or more societies such as the American Economic and Historical Associations. The associations named, through committees, have agreed to set apart a session of the New Orleans meeting for a further discussion of the entire question. The report of the committee of fifteen will then be presented, and one or the other form of organization will doubtless be determined upon. Whether the decision is in favor of a new society or a section or joint section of the

existing associations, the effect will be much the same; as most of the persons interested in political science and comparative legislation are interested also in history, economics, or social science in some form, their organization will tend to the closer affiliation of the existing associations, as well as to the enrichment of the corresponding sciences by increased emphasis upon the method of comparative legislation.

MAX WEST.

SAN JUAN, P. R.

BOOK REVIEWS.

Geschichte der deutschen Landwirthschaft. By Dr. Theodor Freiherr von der Goltz. Erster Band. Stuttgart and Berlin: Cotta'sche Buchhandlung Nachfolger, 1902. 8vo, pp. vi + 485.

The aim of Director von der Goltz is to give the history of the cultivation as well as of the cultivators of the soil during the various phases of political and social development in Germany. Hence German husbandry and agrarian conditions are treated from a more strictly economic and agrarian point of view than in the well-known and broadly planned work of Inama-Sternegg, with which the author to some extent compares his own. The volume here reviewed discusses the changes which German agriculture has undergone from its beginnings to the end of the eighteenth century, when it was clearly understood that reform was necessary, if in this line Germany was to keep abreast with the surrounding nations and satisfy the needs of its own population. This general outline is again divided into three parts. The first extends from the beginning of German settlements to the economic change caused by the administration of Charles the Great; the second from the ninth century to the middle of the eighteenth —almost a thousand years, in which agriculture underwent few, if any, important changes. The third part concerns itself with the attempts largely made by writers (specialists on the subject, the so-called *Kameralists*) and by the Prussian kings in the later eighteenth century to revolutionize agrarian conditions either by instruction and argument or by peremptory command to mend the evils caused by centuries of sloth, ignorance, and sheer brutality. The continuation of this reform work and the profound changes which landed interests have undergone in the nineteenth century are to be the subjects of another volume still to be issued.

In the first part the author, as indicated, discusses the semi-nomadic life of the early Germans, which at first consisted in sporadic cultivation of a few favored spots, and later a constant use of one strip of land for grain, another for grazing. Gradually came a clearer understanding of the necessity of rotation of crops, a process which must

have lasted some hundred years before it fully attained its completion in the three- and four-field system — for centuries the method common to all Germany. Director von der Goltz thinks that the Germans learned the systematic treatment of the soil from the Romans. The two-field system which was so characteristic of Roman agriculture, and which the author also refers to, was undoubtedly the foundation upon which the three-field system was reared; but it is our private opinion that, inasmuch as the three-field system is not known to us previous to the Christian era (*cf.* p. 77), it was an improvement brought about by the missionaries and the monks who undertook the care of providing for others besides themselves, and who had to reckon with a season when nothing was to be gotten from the soil. The novel feature of summer and winter grain necessarily put the ground under a more intensive cultivation and caused the desired larger quota to come from the soil.

At this early period the *Markgenossenschaft*, with its possession and cultivation in common, was a necessary economic organization. It evidently compelled as much as it restrained, thus creating a, for the time, perhaps wholesome medium of individual effort. Other associations embraced the rights to possession and use of water and fields for grazing. One point made by the book which is new to us, and which sheds much light upon mediæval conditions, is that even the settlers who were not gathered in a village, but occupied each an individual homestead with adjoining fields, were not allowed nor expected to sow or reap according to their desire, but subject to the same rigid regulations which prevailed in the village community. Everyone was expected to do as his neighbor did, the *Flurzwang* penetrated everywhere and restricted each individual even in regard to the use of his property (p. 91). The reflections which this fact gives rise to — whether such stringent restrictions in the view of the community served as measures of self-preservation at a period when energy was needed for the works of war rather than peace, or whether they were merely the survival of tribal rules which exercised their retarding influence even after individual ownership was recognized — these reflections the author wholly passes by. His domain is not the elucidation of such more or less obscure problems of which economic history at this period suggests so many, but the plain narration of evident facts.

The author's remarks concerning the rise of a peasant class are interesting. It is clear that where everyone subsists wholly on the

output of his land, the farmer, if he must also be a soldier, frequently runs the risk of starvation when the war is over and he returns to his untilled fields. Either the country must relinquish its demands upon his willingness to defend it, or he must face an emergency for which he knows no remedy. As a result the defense is left to a class which refuses every other permanent occupation, and the farmer is led to resign his privileges as well as his duties as a soldier and devote himself wholly to the cultivation of the soil. From this stage there is in an uninventive age, but a step to the yielding of other rights as well; and by the might of the sword he is soon reduced to economic as well as political insignificance; becomes the holder of property rather than the owner, and the toiler for the benefit of others rather than for himself. The soil, the only definite source of income and livelihood, claims its victims, as it were, and the land, by the aid of concurring political and social circumstances, comes finally to be one vast mass of interdependent tenures that spreads like a net over all property and holds every individual in its meshes.

As an example of domestic government on a large scale the author gives a review of the domainial administration inaugurated by Charles the Great (pp. 98–115) in his famous capitulary, where everything is regulated to the minutest detail. He finds that the careful account of every item of inventory, of expenditure and profit asked for by the emperor surpasses even what can be expected in the way of bookkeeping on a large and well-managed estate today. The author seems to entertain the opinion that from this epoch-making capitulary the church learned its lesson of management. To us, however, it appears that the original debt must lie on the emperor. But that Charles the Great was able by his legislation to teach the lay aristocracy how to govern their possessions is in itself of sufficient importance to gain for him the high praise as innovator and guide for a thousand years which the author justly claims for him.

The second division of the book, which discusses agrarian conditions from the time of Charles the Great to the middle of the eighteenth century, and occupies more than one-third of the volume, is in many respects its most interesting portion. The author describes the general status of Germany, the foundation of cities and the rise of new classes in the burghers and the knights, which between them again helped to isolate and make more defenseless than ever the third and politically almost ignored class, the peasantry. The tillers of the soil, owing to their forced or inherited political and social inactivity, were

caught between the two vastly more active factors and sadly ground down. Yet of the two the burgher class, by its wider interests and its increasing need of performers of manual labor, offered a refuge to the overoppressed peasant; while the military class, the knights, whose sole fortune consisted in the peasants settled on their land and bound to provide for them, their household and retainers, in course of time left no scheme untried for getting all the profit from the transaction which the proprietary rights of the one party and the dependent and defenseless position of the other party would present. As the centuries progressed, this peculiar exploitation of labor, which the author ascribes to the inherited distaste of the Germans for work and their love of war, became aggravated rather than ameliorated; and perhaps one of the most instructive things in the book is the author's detail concerning the *gemessene Leistungen*, which soon changed into *ungemessene*. The harrassed and distracted toiler who only too truly called himself poor *Kuonrad* (*kein Rat*), finally rose in rebellion and *die Bauernkriege* and their results are doubtless, for superciliousness and inhumanity, among the most abominable and barbarous events in German history. They suggest vividly the traditional contempt and utter disregard of the German privileged classes for the ordinary citizen and their inferiors, which seems to be as much in evidence now as ever. The pathos of the situation previous to and after the Peasants' War, is peculiarly enhanced by the author's mode of speaking of the misery of these countless beings. Von der Goltz's treatment of the matter is *durchaus sachlich*, almost superhumanly so. Not for a moment does any sentimental bias in the one or the other direction suggest itself to the reader, but if inclined to side with either the author seems prone to see the justice of the claims of the privileged class rather than those of the unprivileged, in conformity with the old truly feudal notion that *Unterthanen müssen unterthänig sein;* the obscure toiler is evidently born to toil, and there is no use trying to alter the divinely appointed relation. Luther's share in the outcome of the Peasants' War seems to receive his indorsement and absolute sanction. He repeatedly emphasizes Luther's *tiefe sittliche Entrüstung* which led him to utter such decidedly *unsittliche* demands for the destruction of those who had trusted above all to his mediatorship and calming influence. No eloquence or reference to the roughness of the times can excuse Luther's lack of simple human dignity nor his lack of apostolic goodness on this occasion. That the peasants, broken in heart and annihilated in fortune, totally despaired of the justice of God and man alike was

chiefly Luther's work; and the black cloud of intolerance and hatred which settled over Germany and broke in the horrible struggle of thirty years seems but the just reward for the hideous doings of the previous period. Even before this time, however, the change of conditions caused by the change of habitation, especially by the extensive colonization of the districts east of the Elbe, had brought no particular relief. The author shows lucidly (pp. 137–53) that the amalgamation of the German settlers with the Slav population made matters in some respects even worse. It is certainly worth while for American students, who as a rule are but scantily informed about this important phase in the history of Germany, to read this section.[1]

The political results of the Thirty Years' War are as a rule better known than the economic. The author very ably summarizes the effects. The reduction of the peasants to complete economic dependence reached its height in the half century or more after the war, while the country lay stunned and bleeding after its fearful trials. The demand for capital and need of economic concentration in order to build up anew what had been partly or wholly destroyed caused the landowners to deprive their tenants of their holdings and reduce the larger number of the peasant farmers to serfs and *glebae adscripti*, as old Rome had done under the emperors. Every hope of improvement of their condition seemed gone from the wretched beings, who were driven to work with blows and could hardly call their souls their own. The enlightened despotism of that and the following period, however, saved them from the civil and moral death which seemed to be their final lot. Director von der Goltz mentions in this connection with particular praise such princes as Frederic William I. and Frederic II. of Prussia. Their efforts to protect the peasants on their own domains, and to reform not only the economic but the social misfortune under which the peasants labored, certainly place them in the foremost ranks as the benefactors of their country and subjects. The gigantic enterprises begun and completed by them in draining marshes and winning land for cultivation and new settlement deserve the admiration of the present day. The influx of new blood and new ideas with the colonists from other countries who settled by thousands in these new districts was an even greater gain. Both Frederic William I.

[1] It is but characteristic of the ignorance of this period prevailing in America that a work on colonization issued some years ago and pretending to treat of every phase connected with colonization at all periods contained not a word about this important movement, to which the present German empire so largely owes its existence.

and Frederic II. were indefatigable in their attempts to improve the condition of the peasant class. Frederic William I. in 1718 and 1719 abolished serfdom on his domains, and Frederic II. in 1773 abolished serfdom in the royal province of Prussia, without, however, thereby liberating the peasants as completely from their status as *glebae adscripti* as the terms of the edict might at first suggest (p. 424), or even effecting any substantial relief from their customary unlimited services and dues. The king was anxious to keep sun and wind even. But the royal eye watched closely the effect of the various patents and rescripts issued, and the royal power tried consistently to ease the burdens of the peasantry. The way in which the great king made his will known to some of his noble subjects who had been found guilty of inhuman treatment of their peasants is decidedly worth reading (p. 430). No wonder *der alte Fritz* is still cited as a miracle of fairness and shrewdness at the same time, and his name cherished. Von der Goltz points out how neither the king nor his contemporaries saw that to release the peasants from their customary dues and make them independent landowners would necessitate the rise of a class of day laborers who depended on their wages—a fourth (country) estate, as it were, on whose readiness and number the landlord would have to rely for the cultivation of his fields and the harvesting of his grain, the problem that now makes farming such precarious business all over the world. Conditions, however, had come to such a pass that half measures seemed wholly inadequate, and the king's command and eager example naturally contributed to more or less sweeping changes in the conditions of the peasants.

Another of the great king's efforts to improve the economic situation generally was directed toward extending the opportunity for loans among the landowners, whose lack of capital seriously hampered their desire for improvement. In order to invite capital, however, the proper valuation of property, the just assessment of taxes, and other regulations for raising the value of property must first take place, and the state and its representative, the government, was naturally the one to see that this was done in a way to inspire confidence. After having established the proper institutions, the king left the working of the monetary question to private initiative or to concerns of more official character, such as the *landwirthshaftliche Immobiliarkreditinstituten* which managed the affairs of their respective provjnces and kept capital as much as possible employed at home.

In regard to improvements in agricultural methods, the tillage of

fields, and the management of live stock, the efforts of such energetic organizers and promoters as both Frederic William I. and Frederic II. had in many ways been preceded by those of various writers, the already mentioned *Kameralists*, specialists on economic problems of the time, who had treated the subject of husbandry and cultivation more or less scientifically and had ardently advocated improvements. The natural sciences as well as scientific discussion, were still in their infancy, but the first step in both directions was already taken, and societies for the improvement of agriculture had been formed which kept alive the interest and offered instruction by reports and articles. Chemistry had started on its wonderful road of discovery, and agriculturists naturally benefited from the new incentive to observation and study thus given. The question of the composition of the soil and the way in which plants receive their nourishment was one of the first to be raised, and the gradual understanding of the physical conditions necessary for growth resulting therefrom, in many ways revolutionized cultivation. A not inconspicuous part of the book is devoted to relating the changes in methods and views thus brought about and to a chronological account of the writers who thus influenced the time.

The author can truly be said to have done justice to any reasonable demand for completeness. Yet, although he tries to be but summary in his accounts of events, the portions of his book which discuss political and social conditions are by all means the larger ones. Curiously enough in a footnote (p. 254) the author expresses his intention to avoid repetition, but repetition is just the fault with which the reader is apt to charge his book, and particularly in those portions devoted to matters of general interest. Fustel de Coulanges's peculiar method of argumentation has made repetition of statements and phrases almost a fad among historical writers, but von der Goltz in his book has no hostile theory to confute, and the frequent reiteration of phrases undeniably impairs the pleasure otherwise experienced.

Director von der Goltz thinks it is far more difficult to write the history of agriculture from its own point of view, *i. e.*, that of fitness of soil, climate, population, modes of cultivation, commercial intercourse and influence of ideas, than from that of the general historical development, and we cannot but agree with him. So comprehensive a work may, indeed, never be written, and if ever attempted will consist largely of monographs. The ultimate success of von der Goltz's own work, however, will largely depend upon the volume which is to come. The present volume, as far as exactness of knowledge

broad treatment, large fund of information, and a pleasant style are concerned, readily holds its own among its kind. It is, as the author points out, the fruit of twenty-five years of arduous studies and a long record as leader of an agricultural institution, and will, no doubt, prove a very welcome contribution to the rather scant supply of literature upon the subject and an appreciated source of information to the students of political economy in this country as well as abroad.

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Les systèmes de culture; Les spéculations agricoles. Par FRANÇOIS BERNARD. Paris: Masson & C^ie^, 1898. 8vo, pp. xi+392.

Géographie agricole de la France et du monde. Par J. DU PLESSIS DE GRENÉDAN. Paris: Masson & C^ie^, 1903. 8vo, pp. xx +424.

Précis de géographie économique. Par MARCEL DUBOIS et J. G. KERGOMARD. Paris: Masson & C^ie^, 1903. 8vo, pp. viii+ 837.

THE book of Professor Bernard deserves more space than its bulk indicates, because it is interesting, and still more because American agriculture is interested in precisely such literature as this. The strenuous exertions that are now making to extend agricultural education in this country and to adapt methods of agriculture to the highest economic achievement make it extremely desirable that American students and the well-read American farmer should have at their disposal a systematic and inspiring work on the economics of agriculture, which should not repel by an array of statistics, but should invite by its consistency and by its well-maintained point of view. Such a book is that of Professor Bernard, and it is much to be regretted that it has not long ago been translated and adapted to conditions prevailing in the United States.

The only work written for American students which professes to cover the ground of rural economics, with which the reviewer is acquainted, is simply a restatement of orthodox economics with the rural motive written in at certain places, and with some rural statistics interpolated, but not incorporated into the text.

Far different is Professor Bernard's conception of rural economics. It is not to be a rehash of political economy, but an array of rural economic interests, treated of course with reference to accepted princi-

ples, but formulating precepts that present themselves as distinctly agricultural. Instead of chapters on the theory of rent, wages, and profits, on exchange, banking, and money, and on the general principles of saving and consumption, we have chapters on "The Modern Agricultural Problem," on "The History of Agricultural Economics," on "The Classification of Systems of Cultivation," on "Analysis of the Systems of Cultivation," "Population and Wages," "Large and Small Farms," "Laws, Customs, and Markets," "The Superintendence of Cultivation," "Agricultural Associations and Combinations," "Credit," "Fertilizers," and "Machinery;" and in a second part we have treated the economics of "Forests," of "Cattle Feeding," of "Fallows," of "Grain-Raising," of "Raw Materials," of "Grain-Growing," etc. While from the point of view of an orthodox political economy these titles may seem a little incongruous, still when a person has gone over the book carefully he is satisfied with the general view of the economic interests of agriculture, and knows that he has not read a mere work on technical agriculture, but one in the distinct field of agricultural economy.

According to our author, while most of the accepted economic titles are pertinent also to the interests of agriculture, the real problem of economic agriculture is to find out what cultivation pays in a given environment. Previous writers have endeavored to solve this problem and, as is usual in new sciences, they have first sought to delimit the field by establishing some test or standard. These studies have led to an attempt to classify the systems of culture historically — an attempt which has shunted rural economy from its true analytic purpose. No matter how much authors have attempted to classify cultivation according to technical systems, they have failed to reach the true economic idea, but have always been dominated more or less by the historical and biological idea.

The true economic idea takes as a standard the gross product and, be it understood, not the technical gross product, but the economic gross product or the value of the gross product. Now, since the same gross product is given by entirely different technical systems, according to whatever happens to be the agricultural environment, the state of the market, the facilities of culture, the accumulation of capital, or the facilities of agricultural credit, it follows that there can be no economic standard inherent in any system of culture, but that the economic standard is to be found solely in the value of the gross product.

Of course, the economic standard is not to be found in the value of the net produce, because competition renders theoretically a uniform rate for all business, agricultural or not. The adaptation of the *system of culture* is that which enables a greater produce to be raised from a given area; it is that, therefore, which enables a greater investment and a greater total profit to be made upon a given area; but presumably it does not, in the long run differentiate the rate of profit in agriculture from that in other industries.

The problem of the farmer then, is to find out what system of culture will give the greatest gross product, in other words, will allow the largest amount of farming to be done, particularly in that section of country where he finds himself. The function of agricultural economics is to assist the farmer in forming judgments on this matter, and consequently a work on agricultural economics should treat of the principal kinds of culture and of the environments in which they are severally found to be remunerative more than other systems; and again, a work on agricultural economics takes up certain interests that particularly affect the farmer, such as the economic organization of the farm and the different systems of farming to be adopted according as the farmer has a large or small capital, or according as he is able to carry on a large or small farm relatively to the practice in his district.

It is wholesome for the American to notice the arguments brought forward in favor of the advantages of European agriculture. Assuredly, agriculture would not be practiced in Europe if it did not pay. The enormous yield of crops in Europe indicates quite a material basis for agriculture, looked at from a business point of view. Comparing France with the United States, Professor Bernard suggests that the high national debt of France is offset by the large local debt of the United States. A cursory glance at statistics would seem to indicate, however, that the compensation is far from complete. Taking the statement in Adams's *Science of Finance*, that in France local expenditure and national expenditure are in the proportion 30 : 70, while in the United States they bear the reverse proportion 61 : 39, and assuming that that proportion still holds good, the reviewer finds that the national and local debts of France together would be about $215 per capita, while in the United States the same sum would be only about $37 per capita. This is on the basis that the national debt of France is $150 per capita and that of the United States is $14 per capita, as given in the monthly summary of commerce and finance for March, 1901 (National Debts of the World).

Against the standing army of France, Professor Bernard sets over the high wages in the United States; against higher taxation in France, he sets over, the useful application of it to education and public works and the (by some) supposed beneficent influence of protection on French agriculture; against cheap transportation in and from the United States, he sets over the absence of transportation charges across the ocean, and the rule that competition is bound to equalize national conditions by raising land values in the United States, by raising wages and taxes there, and even by raising rates of transportation there. Moreover, in the United States speculation is more dominant and the speculators get a bigger share of the produce.

With regard to the discussion as to the cause of the rise of land values, Professor Bernard is quite positive they are a sign and result of profit from farming. He gives instances to show good profit from many French farms. On population, he thinks that the real reason the French population is stationary is because France is essentially an agricultural country, and not necessarily because of the subdivision of properties. He thinks that the law cannot enforce an extreme subdivision of property, but that the esstates that have been partitioned will be brought together by rational economic influences in spite of the law.

France is looked upon as a country of small holdings; a discussion, therefore, of the relative merits of large and small farming (which is the question really meant when large and small holdings are spoken of) is especially interesting in a French book. From the nature of the crops and from other causes small culture is less exposed to financial crises than large culture. It suffers, however, a great disadvantage in the purchasing of machinery and especially of fertilizers. Here the *agricultural syndicates* come to the help of the farmer. They are the most important feature of recent French agriculture. They are chiefly formed under the law on professional syndicates of March 21, 1889, which was originally designed to favor the association of small capitalists and manufacturers, and which embraced agricultural interests only by a chance motion introduced at the eleventh hour in the senate by M. Oudet. He moved that the words *Intérêts agricoles* should be introduced. The law, however, has become chiefly a means of agricultural organization; and in this matter it would appear that the French peasant is far ahead of the American farmer. However, the agricultural syndicates have not been very successful when organized for sale. The French peasant resembles the American farmer in think-

ing that his pig and his grain are better than his neighbor's and should bring bigger prices. In purchasing, the syndicates have been quite successful, especially in buying artificial fertilizers, the trade in which had been a scene of riotous scamping, amounting to a real oppression of the peasant, before the syndicates took a hand in it.

As to credit, its use has become necessary through introduction of business principles into farming. The length of the production period being different in agriculture from what it is in manufactures and commerce, commercial paper created from the farmer's point of view would run for a much longer period than the usual practice — say, for a year. Hence it is necessary that credit institutions should be created which may absorb the farmer's paper and convert it into a commercial paper of standard time period. The agricultural classes, therefore, stand in need of a special class of banking institutions which may act as intermediaries between them and the world of finance.

This difficulty was met by the law of November 5, 1894, which authorized syndicates to be formed with the object of doing a banking business for the farmers. Moreover, where the farmers succeed in getting a certain proportion of the loans they want, through private sources, the government steps in and offers to supply the remainder. The fund from which the government is enabled to promise such largesses to agriculture is the bonus paid by the Bank of France for the renewal of its charter.

In general the system of letting on shares is practiced where the gross produce is small; but where that exceeds 150 francs per hectare, farming on shares is no longer indicated; on the other hand, when farming on shares seems advisable, the rate of profit must be much higher than otherwise, because that system involves a much greater labor of superintendence. The distinction between net profit and gross profit thus appears plainly:

> In the choice of a system of culture on a given farm, the object is not first and foremost to attain a maximum value of produce sold: the highest gross produce is not necessarily the most advantageous for the farmer; the greatest *profit* is what must be aimed at.

Mr. Bernard is professor of rural economy at the national school of agriculture at Montpellier, which is situated on the same grounds with the University of Montpellier, although it is an entirely distinct institution.

His book is well supplemented by the agricultural geography of Du Plessis de Grenédan, professor at the higher school of agriculture of

Angers. Bernard's book discusses the general principles to which the agriculturist must adapt his culture if he cares to do a profitable business. The book of Du Plessis professes to give the necessary data according to which the principles enounced by Bernard may be applied. The book is illustrated by 118 charts, mostly maps, which indicate by shaded surfaces and lines the limits of the geographical conditions under discussion. Needless to say that the indications are much more extensive and specific for France and its colonies than for the rest of the world, the former occupying 270 pages and the latter 140. Evidently the French division of the book is the really serious one, and there can be no doubt but that the treatment is thorough. In order to understand the purpose of this book, let us suppose a farmer located in any part of France, say La Beauce. He does not need to have the soil examined, nor to consult the weather bureau, nor to look about to see what his neigbors are doing. Just let him sit down and consult the charts of Professor Du Plessis, and he will find that La Beauce is a fertile plain elevated less than 200 meters above the sea in the Basin of Paris, a tertiary formation abounding in lime, and thus calculated to give a high yield by the mere addition of animal fertilizers, for does not Professor Bernard say (p. 207) that :

> The application of fertilizers requires capital and judgment; for instance, nitrogen in organic compounds (manures, bones, blood, etc.) must return to its original state, nitrogenous or ammoniacal, before it can be absorbed by plants; but nitrification occurs naturally in the soil only under the influence of certain ferments and in presence of lime. In soils poor in lime, like granite soils, therefore, organic manures do no good.

Our peasant also finds that the average winter temperature is 1° centigrade and the summer temperature between 18° and 19°, and that he is not far within the northern limit for the growing of grapes; that the density of population is from twenty to sixty to the square kilometer; that he is near the Loire, a river generally navigable, although it is subject to enormous fluctuations, varying from 25 cubic meters per second in low water to 9,000 cubic meters in high water. If, however the river is too low, he can obtain his building materials and fertilizers by canal connecting with the Seine, or through the canal De Bourgogne connecting with the Saône and the Rhone toward the south, or toward the northeast connecting by various routes with the Rhine. He finds that the soil of La Beauce is rich, cultivable land, in contradistinction to the lands of moderate fertility that lie south of the Loire and extend northeast in a broad belt to the German frontier. He can sell

his land for from 1,830 to 3,000 francs the hectare. It is adapted to the raising of sugar beets probably, but not to the raising of fibers, tobacco, or plants for perfumes. As to grain-growing, most of the interior of France is adapted to that, except a narrow strip running from La Sologne, in the Orléanais, northeast through Champagne, and excepting also the central height of land. Probably his land is adapted to wheat and oats, but not to the growth of maize, which is cultivated about up to the Loire in the west and as high as Lorraine in the east, outside of the central height. One would hardly cultivate buckwheat in La Beauce, nor millet. In fact, wheat is the main crop. (See Fig. 41, III.) That country is so fertile that it contains no natural pasturage, being all under plow. At the same time, it is well supplied with artificial meadows. Butter and cheese are produced there, but it is a little out of the district for fattening animals for beef. On the other hand, lying just south of Rambouillet, where is located the national shepherd school, it is quite appropriately accustomed to the raising of sheep. Here one may profitably raise rabbits for the market and also chickens.

All these things and many more may be learned about every district in France from this excellent book and its charts.

A traveler in France who has a practical turn of mind is often dissatisfied, on getting out at the station and opening his guide-book, to find little explanation except with relation to architecture and art. It is true that Baedeker does give some economic and industrial information, but not in a way to satisfy the economically curious. Armed with a book like that of Du Plessis, and familiar with its method, one might derive infinitely more satisfaction from a tour in what is undoubtedly the most beautiful country on earth. It incloses within its boundaries almost every variety of agriculture and every variety of soil. The wonder is that all of these different kinds of climate and agricultural opportunity seem to be the best of their kind. One becomes contaminated with the satisfaction of the Frenchman. Even the stony wastes of La Crau and La Camargue, and the difficult steppes of the Alps and the Cévennes, seem to afford a spontaneous bounty at the behest of the Frenchman's jingoism. The cold facts seem to be that France possesses a great deal of very rich soil, but also a good deal quite the opposite, and that the universal productivity of its agriculture is due to secular civilization.

There is some exception of course to the equability of the various climates of France. The winds that blow up the valley of the Rhône

and Saône are famous. Who has not heard about the bridge on the Rhône at Avignon, and the Mistral,

which blows cold and violent over Languedoc and Provence? It is a north-west wind that gets colder and harder as it crosses the summits of the central plateau and enters the valleys that open onto the plains of the Rhône (p. 34).

On the French coast, many large districts have been reclaimed from the sea, such as Mont St. Michel, some of the islands in the Loire, the neighborhood of La Rochelle and Rochefort, and especially the banks of La Gironde. La Gironde forms the mouth of the rivers Garonne and Dordogne, and here and on the opposite side of France, in Burgundy, is raised the highest-priced wine. Maps of all the best wine districts are given, with a particular description of the value of the wine and of the land, the kind of grapes grown, whether native stock or grafted to American stock, in order to withstand the phylloxera. It must be remembered that France produces one-sixth of the wine of the world. A single one of the famous vineyards of France furnishes more wine than the whole of Spain or Italy.

Agricultural geography, however, does not stop at mere physical environment. It treats also of agricultural capital, which consists chiefly of the value of the land under cultivation. "This value has decreased considerably since 1880; perhaps it has now ceased going down; but it is very doubtful if it goes up again soon." The taxes amount, on an average, to 32 per cent of the clear profit of the capital engaged in agriculture. The geography goes farther and attempts to strike a balance-sheet for the whole country based on statistical data, and comes to the conclusion that agriculture altogether brings a a profit of just about 2.40 francs per hundred.

It is worth noticing also that a part of this net profit is absorbed on one side by the interest on loans other than mortgages, and on the other hand, by the charge of maintenance of and gradual paying for buildings — charges that did not enter into the calculation. Agricultural France is rich; but it is plain that it is passing through a difficult crisis which is aggravated by the needs of the state and by the financial disorder which makes these needs insatiable.

The third book, the *Economic Geography* of Professors Du Bois and Kergomard, forms a fitting culmination of the series. The question is no longer one of economic principles in agriculture, nor simply of the economic data contained in or needful for agriculture; but this time the design is to give an economic description of the world. Of

course, if this idea were fully carried out, the economic geography should contain everything contained in the agricultural geography in addition to all the necessary facts connected with the manufactures. Naturally, on the geographic side it is not so strong as the economic geography, nor can such a book take up any more thoroughly the manufactures. Certainly if any one in the world could make such a work interesting, it would be a Frenchman; and it is not to be denied that a certain satisfaction can be obtained from a reading of this book. At the same time, the attempt to convey so much information in one book suffers from a weakening of the point of view. The agricultural geography was strong in this direction; for the point of view was not only economic, but agricultural. Professor Du Bois says that what is needed above all is bold initiative, and he trusts that this great mass of information will fall under the eyes of economic geniuses who will find in it new and hitherto unsuspected combinations. But the dose seems to be rather indigestible.

After agriculture the authors take up industry and announce a new classification of industry: the old classification was into industries which worked up mineral or metallic utilities, those which furnished food, clothing, transportation, furniture, etc. From the point of view of the geographer, this is not correct. A geography, even though economic, should classify the physical environment; man's utilities should be made subordinate, consequently our authors have adopted three heads: (1) industries derived from the mineral kingdom; (2) industries derived from the vegetable kingdom; (3) industries derived from the animal kingdom. This classification is pursued throughout the work and applied to all countries in the world.

In respect to comprehensiveness, this book is better balanced than the agricultural geography. Out of 826 pages, 152 are devoted to France, 228 to the rest of Europe, 102 to Asia, 28 to Oceania, 92 to Africa, and 122 to America. On the whole we have here a well-written, encyclopædic description of the economic geography of the world.

At any rate, after reading these books, one is convinced that the old reproach against French science of knowing nothing outside of France is no longer deserved.

W. G. Langworthy Taylor.

University of Nebraska.

Fire Insurance and How to Build. By FRANCIS O. MOORE. New York: The Baker & Taylor Co., 1903. 8vo, pp. 860.

AN excursion into the field of fire-insurance literature is not ordinarily so accompanied by pleasure as to be undertaken for its own sake. One who, for any reason, has ever plunged into the jungle of the "Chronicle Fire Tables," or the statistical desert of the great fire-department reports, or who has attempted to cull the scanty fruit from the volumes of the fire underwriters' associations' reports and the fire-insurance journals, knows the feeling of the proverbial burned child.

Mr. Frances O. Moore has written a book which is an exception to this general rule. This work is apparently intended to serve primarily as a text-book or guide for fire-insurance agents, but it will interest a wider circle of readers. For there are many interesting bits of discussion on moot points in the theory of fire insurance interspersed amid the sage advice to agents and the mandatory rules for their daily conduct more common in such guides. Of these theoretical discussions perhaps the most important are: the vigorous argument in defense of "schedule rating," together with the lucid explanation of the so-called "Universal Mercantile Schedule," and the attempted solution of the problem of "co-insurance." It is with these that this review is mainly concerned. There is also much practical information concerning the best methods of guarding against fire in the construction of buildings —all of which cannot fail to be of interest and value to architects and builders. The 1902 edition of the "Standard Universal Schedule for Rating Mercantile Risks" is reprinted as a whole.

The author, for many years president of the Continental Insurance Co. is well known to all readers of fire-insurance literature as the chairman of the Universal Schedule Committee and one of the most ardent advocates of rating by schedule. By lifelong experience and knowledge he is well qualified for the task of preparing such a treatise. The style is that of a plain business man, making little pretense to literary art; the book is not divided into chapters, has no table of contents, and the subjects treated are scattered about in a somewhat erratic manner. But the thought is always clear and often attractively presented.

The reasons why fire-insurance literature is almost always dull are the entire absence of guiding principles, and the consequent lack of system. There are no beaten paths, and the multitude of diverse ideas never fall into orderly ranks. In this respect it presents a strong contrast to the literature of life insurance. Whether it be that the idea of

a providential order ruling in the lives and deaths of human beings, as suggested by Süssmilch, computed by Halley, and established by our modern life-tables, appeals to the religious instinct of the race, or whether there be a sort of dreadful fascination about death which rivets the attention, certain it is that all men take an interest in such a conception as the bridge of life in Addison's "Vision of Mirza" and Pearson's "Chances of Death;" and of such and similar things is the science and literature of life insurance built up. It is a fundamental tenet of life insurance that there is a "wonderful form of cosmic order" in the "law of frequence," that "supreme law of unreason" which, as Francis Galton so aptly said, the Greeks would have worshiped had they but discovered it. The same law undoubtedly applies to fires and their recurrence, but the "chances" have not been computed, and the sole guiding principle at present applied in fire insurance is that expressed by the homely proverb: "Don't put all the eggs in one basket." To the average man a "game of chance" remains such only so long as a considerable number of the "probabilities" involved are unknown to most of the players. As soon as the players can "compute" the "chances," the "game" becomes a "science." Fire insurance still plays with too many unknown chances to obtain in this sense the appellation of a "science." This will not always be the case. For although it is hardly probable that fire insurance will ever come to depend upon science to the same extent that life insurance does, yet much more than is now known can be learned concerning its laws and the probability of loss by fire. Nobody will be so rash as to deny that the occurrence of fires and the amount of loss they entail are, like any other series of events affecting human welfare and the result of human actions, governed by, or at least fall under, some empirical law which it is perfectly possible to discover. As yet, however, the law is but vaguely known; and even the method of its formulation remains to be determined.

The problem involved in determining the law underlying losses by fire is much more complex than that presented in the case of life insurance. There is no such thing as a partial death known to life insurance, but a building and goods must be insured against partial loss by fire. Diseased lives are not insured, but badly constructed fire-trap houses and their contents must be. A life has no market value to fluctuate day by day, and there is nothing to consider but the face of the policy; but the property covered by a fire policy does fluctuate in value, and the face of the policy is simply a limit of liability. Unless

there is some known reason for making a difference, one healthy life is much like any other, save in the sole respect of age; and age classes are comparatively few, and progress from one to another is definite and certain. The classes of fire risks with respect to liability to damage or destruction are legion, their nature is such as to well-nigh defy classification, and in many instances that liability fluctuates from day to day.

Complex as the problem is, the statistical data necessary for its solution are not impossible to compile, and the interests at stake are great enough to warrant considerable expense in their collection. That fire underwriters have not more generally attempted the use of scientifically compiled statistics, but prefer to depend upon unanalyzed judgments based upon their own business experience is probably explained by the fact that a satisfactory method of solving the problem has never been devised, were the statistics at hand. Two features of Mr. Moore's book suggest the possible lines of advance: one is the presentation of schedule rating, the other the discussion of co-insurance.

Schedule rating may be looked upon from two very different points of view. From one point of view it may be regarded as an attempt to penalize the insured for certain enumerated defects or faults of construction, environment, etc., which increase the risk, and to reward him for certain good features which lessen the danger and conduce to his own and the company's protection. When so regarded it is largely a practical expedient for educating the public and cutting down the amount of the losses to be paid. But it may be regarded from an entirely different point of view, and one which to the student of fire-insurance theory is certainly most interesting and suggestive. From this point of view schedule rating is an attempt to analyze each hazard into its component parts, and to build up the rate in each case by a series of charges for dangerous features and credits for protective features. Thus, to find the rate for a given building we start with a general basis rate (or key rate), as the first charge, which represents the estimated cost of carrying a carefully defined standard building of a given class in a standard environment (or, of course, goods of a given class in such a building); then every deviation from the standard which is found in the particular risk is rated according to a fixed tariff and set down with an appropriate credit or charge, as the case may be, and the balance which is finally struck gives the rate sought. We have thus in the schedule an authentic list of what hundreds of underwriters have

agreed are merits or demerits in construction and affect the hazard. In one form or another schedule rating now prevails in practically all large cities, at least within the fire limits. In practice the basis rate is assumed at some convenient round number of cents on the hundred dollars nearest that amount which the roughly estimated experience of the past has suggested to be a safe charge. The credits and charges for deviations from the standard are similarly estimated. Herein lies the weakness of schedule rating. These quantities should all be measured by careful statistical investigations; they should not be merely guessed at. But the adoption of the schedule suggests exactly what should be sought, and renders it possible to get the exact facts and figures that will be needed for a solution of the problems involved in fire insurance.

The basis, or key rate, as it is variously called, is an exceedingly interesting conception. It is supposed to represent the normal cost of insurance; that is, the duly apportioned losses for a normal risk of a particular class, plus expenses. Its definition has given rise to a very amusing controversy between Mr. Moore and Mr. Dean, the latter the author of an interesting book entitled *Fire Rating as a Science*, in which an attempt is made to show that fire losses run in waves. Mr. Dean described the basis rate by the accurate, if high-sounding, phrase "the residuum of unanalyzed hazard," the items specified in the schedule being in his thought the analyzed hazard. This phrase was greeted with some ridicule by Mr. Moore and his friends, to whom Mr. Dean replied that "a starting-point (Mr. Moore's term) was no definition. The controversy exemplifies a confusion of thought that is not at all uncommon. It is not clear to some whether this basis rate is the debit balance (as it were) which has to be charged in order to bring the account out straight, or whether it is really the first and most essential entry in the account.

Whatever the merits or demerits of schedule rating, it is clear that it is full of promise for a more scientific treatment of fire insurance in the future, if for the sole reason that it lists the items a correct measurement of which must be sought.

With the advent of the so-called fireproof building and of slow-burning construction on which partial losses to the property are the rule, fire underwriters have had their attention forced, as never before, to a consideration of the relation between the insurance and the value of the property insured. The assured, in such cases, taking into consideration that in case of a fire the damage will be restricted, carries

insurance for, we will say, only 20 per cent. of the entire value of the building, and it may easily happen that what is a partial loss on the building is a total loss to the underwriter. In other words, such buildings do not, on account of under-insurance, contribute their fair share of revenue to the companies, nor their owners bear their due and equitable share of the losses of the community as a whole, always taking into consideration the amount of losses they occasion and make the community bear. Under the somewhat clumsy name of "co-insurance," underwriters have begun to apply an equally clumsy device, though the best available at present, for the correction of this evil.

This device is an adaptation of the principle of the "average" which is familiar in marine insurance. The name recalls the practice of great navies in granting an escort to merchant vessels and dividing the cost of such scant protection as they afforded between the owners of the hulls and the cargoes and the recipients of the freights, in proportion to their respective interests. The force of the co-insurance or average clause, as is well known, is to make the underwriter responsible for that proportion of any loss which the face of the policy bears to the total value of the property or to an especially agreed upon proportion of the value. In other words, the owner carries his own insurance (or insures in other companies) for the remainder of the property, and a loss if it occurs is divided between the two.

This device is a clumsy one, because it dodges the issue and does not solve the real problem. If it be assumed that 80 per cent. of the total value of the property is the correct amount of insurance to be carried, so that the owner may still have some interest in protecting his property, and the rates have been fixed, as they usually are roughly, with reference to the proportion which the losses bear to say 80 per cent. of the value of all property insured, then it is clear that if the owner carries less than 80per cent. without the co-insurance clause, the rate is inadequate. The best remedy is not to apply the co-insurance clause, but to grade the rates in proportion to the fraction of the value insured, the premium rate per $100 increasing as the fraction of the total property insured decreases. The practice of fixing the rates, in classes where short insurance is most likely to be carried, high enough to cover the cost when only, say, 20 per cent. is carried, and then making a reduction for co-insurance is a "topsy-turvy" way of getting at the result. The fire waste, which the community as a whole attempts to distribute equitably over all the owners of property through the agency of fire insurance, is best conceived of and expressed as a per-

centage of the value of the property, and consequently the premium rate should be expressed as a proportion of the value of the property. (This is in no sense to be regarded as an advocacy of a "valued policy.") Short insurance will increase the percentage of "incurred loss" to "premiums earned" (the usual test as to whether the business "pays" or is self-sustaining), even when the actual fire waste is decreasing. Although Mr. Moore says confidently "there is no reason why a rate cannot be graded according to the amount of insurance carried," there are two reasons why that has never been done in the past, save to a limited extent in the case of fireproof buildings when rated by schedule. In the first place, an accurate valuation of the property is expensive and often prohibitively so; and it is often necessary to place a policy on goods the identity of which may actually change and the value of which is expected to change as time goes on. This difficulty can, however be overcome in certain classes, and especially in those classes where short insurance is the practice; in other cases it does not apply. In the second place the mathematical problem involved is a very intricate one. Mr. Moore and his associates on the Universal Schedule Committee adopted a table for the graduation of the rates in the case of fireproof buildings when co-insurance is arranged, but it is compiled by some rule-of-thumb method and is in no sense properly proportioned.

The great gain which will come to fire underwriting from the recent development of co-insurance will arise from the establishment of a definite relationship between the value of the property and the premium charged. This, in the opinion of the writer of this review, is the foundation of scientific rate-making. With this and the method of analysis furnished by schedule rating "all things are possible."

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Legal Tender: A Study in English and American Monetary History. By SOPHONISBA PRESTON BRECKINRIDGE ("The Decennial Publications," Second Series, Vol. VII). Chicago: The University of Chicago Press 1903. 8vo, pp. xviii + 181.

IT is a pleasure to review a piece of work so well done as is this history of legal tender by Miss Breckinridge. In it the exercise of the power to determine what shall be a legal tender for debts or

purchases is traced from the Conquest — when it existed as a branch of the royal prerogative in the crown's power over the coinage — through English and American experience to the decision in Julliard *vs.* Greenman in 1884 (not in 1883, as stated at p. 133), which finally settled for this country the validity of our legal-tender acts.

The power of the crown to coin money and enforce its circulation by penalties was unquestioned until Parliament in the fourteenth and fifteenth centuries made a few feeble efforts to exercise at least a confirmatory power over the sovereign's prerogative; but even these were abandoned under the Tudors. About 1600 the doctrine became settled in the courts that all lawful money issued by the crown, despite its debasement, was a legal tender for prior debts. Debasements of the coinage were frequent until the time of Elizabeth, after which they ceased altogether in England; and in 1695 William III left to Parliament the entire subject of regulating the coinage, since which time the matter has never been regarded as outside that body's ordinary legislative power.

One of the author's most interesting conclusions from her investigation of early English practice is that the frequent debasement of the coin was rarely intended for the profit of the crown, but was due to misdirected, though honestly conceived, efforts to secure a stable circulating medium in the face of great difficulties — a view widely at variance with certain general statements that have had much currency among economic writers. In most of these efforts Parliament acquiesced, and in several took the initiative. (See pp. 27–48, *passim*.)

The greater part of the book is devoted to the history of legal tender in America, and especially of all kinds of paper money, whether made a legal tender between individuals, or only in payments to the government. Careful and separate accounts are given of the paper issues of the colonies before the Revolution, of the states before the adoption of the constitution, of the federal government, and finally of the states and state banks since 1789. In approaching the vexed question of the constitutionality and wisdom of the national legal-tender acts, Miss Breckinridge has treated her material with marked freedom from bias. She neither draws unwarranted inferences from the proceedings in the Philadelphia convention of 1787, nor does she censure the men who passed the acts of 1862, honestly believing them necessary, though she shares the general opinion of economists that they were really unjustifiable. She admits that the question of the constitutionality of these acts depends in part upon large considera-

tions of public policy, though she criticises the decision that paper can be made a legal tender for prior debts (a gross debasement of the currency) with the comment that "for an analogus act on the part of the English government, from which American ideas of sovereign power are drawn, we should have to go back to the reign of Henry VIII" (p. 136). It seems right to observe, however, that this comment ignores the fact that between 1776 and 1787 seven of the American states issued paper money that was legal tender for prior debts, although at the time the constitutions of at least four of them (New York, Pennsylvania, North Carolina, and South Carolina) contained the usual prohibitions against deprivation of property. All of the New England colonies and Pennsylvania had done the same before the Revolution. Our early American constitutions, including the federal constitution, were adopted quite as much with reference to American as to English political experience, and, while colonial and early state practice in this regard is not necessarily conclusive, it is certainly very important evidence in determining the meaning of a constitution that is to be historically interpreted. (Compare the use made of similar evidence in the income-tax cases, 157 U. S. 429 and 158 U. S. 601 [1895].)

At pp. 92 and 93 the author answers the argument for the constitutionality of the acts, based upon the prior slight debasement of our gold coins in 1834 to make them equal in value to silver, by showing that, as the ordinary debtor at this time had the option to pay in silver, there was no real impairment of his contract. It should be noticed, however, that this answer could not be made if the contract were to pay in gold coin. (Bronson *vs.* Rodes, 7 Wall, 229 [1869].)

To the author's discussion of state-bank notes and the interpretation of the constitutional prohibition upon the states issuing bills of credit should be added the recent case of Houston and Texas Central Railroad Co. *vs.* Texas, 177 U. S. 66 [1900], in which were considered certain warrants of the state of Texas issued in denominations of $1 and upward, in the size, shape, and color of bank notes, payable to bearer, and by statute made "receivable as money" in payment of all taxes and debts due the state. An added currency was given by granting certain privileges to railroads in the state that would accept them at par for passengers and freight. These warrants were issued, however, only to pay actual debts of the state, and though county officers who had received them were directed to disburse them "as money" at par, they were not to be reissued after coming back to the

hands of the state treasurer. They were redeemable whenever the state had money to pay them, and of course were not legal tender save in payments to the state. These obligations were held not to be unconstitutional "bills of credit," and the court expressed great reluctance to interfere in any way with the power of the states to use their paper credit for genuine borrowing or debt paying purposes. See especially 177 U. S. at 88–90.

In the appendices to the book reference is made to legislation in several states (Kansas, South Dakota, and Nevada) invalidating so-called "gold contracts" between private persons (p. 160). It deserves notice that in 1896 Mr. Justice Field declared, in a *dictum* apparently concurred in by Messrs. Justices Peckham, Brewer, and White, that such laws violated the federal constitution. (See Woodruff *vs.* Mississippi, 162 U. S. 291, 306–9.)

The most interesting matter in the appendices, however, is the reprint of a paper prepared by Mr. Justice Miller and his four associates who composed the majority that overruled Hepburn *vs.* Griswold (the first legal-tender case). This contains an account of what took place in the conference-room of the judges when Hepburn *vs.* Griswold was decided, and was prepared as an answer to a memorandum intended for the court files by Mr. Chief Justice Chase in which he criticised the action of the subsequent majority in granting a rehearing of the question. This memorandum was withdrawn by its author, and the answer was left under seal by Mr. Justice Bradley to be published after the death of all the judges then constituting the court. It has lately been made public by Mr. Justice Bradley's son. Briefly, it states that Mr. Justice Grier was at the time so feeble-minded from age and infirmity that he did not understand the question, and at first persisted in voting for the constitutionality of the law, leaving the court a tie. Later he was reminded that in conversation he had expressed different views, and finally changed his vote. One week later every judge on the bench concurred in telling Mr. Justice Grier that he ought to resign, and he did so. There were at this time two vacancies on the bench about to be filled, but despite this, and despite the evident worthlessness of the concurrence of one of the majority, the decision in Hepburn *vs.* Griswold was made public without further delay.

Mr. Justice Miller and his associates thought that these facts justified their course in granting a rehearing of the question after the bench was again full, especially as neither the public nor the

profession had accepted the first decision as final. Certainly the action of the majority in Hepburn *vs.* Griswold was in striking contrast to that of the court under Marshall, when the important constitutional cases of Charles River Bridge *vs.* Warren Bridge, New York *vs.* Miln, and Briscoe *vs.* Bank of Kentucky were permitted successive rearguments after vacancies occurred on the bench until, it is said, a hostile majority was reduced to a minority by the votes of newly appointed judges. (See New York *vs.* Miln, 8 Peters, at 122 [1834].) Future critics must in fairness give much consideration to this disclosure in rating the judicial conduct of the judges who overruled Hepburn *vs.* Griswold.

Miss Breckinridge's book will occupy a place not filled by any other single work. It makes clear some points concerning the origin of legal-tender money and early English practice in regard to it that have not been generally understood. It brings together in orderly arrangement material heretofore scattered in many places; and it contains the best concise and accurate account of American legal-tender paper money, from the purely legal standpoint, now in print.

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Money and Credit. By WILBUR ALDRICH. Revised Edition. New York and London: The Grafton Press, 1903. 16mo, pp. viii+187.

THIS is a condensed but fairly complete exposition of monetary principles. The author says in his preface that he began ten years ago "studies to substantiate a pet theory," but that "after a time the original theory which started the investigations disappeared and there was developed a view of the subject as new to the author as it will be to any of his readers." The new view seems to be that the projects now under consideration in this country for giving elasticity to the note issues of banks is merely a new form of the "soft money delusion." He would have the notes of banks secured by a gold reserve nearly equal to the notes.

Although Mr. Aldrich has evidently read widely on banking, yet he has failed to understand some of the simple elements of the subject, such as "capital," "reserve," and "assets." The perplexity which his use of these terms will cause the reader may be illustrated by a single sentence: "A bank does not need assets, except for its reserve, and

all surplus not needed for the reserve might as well be distributed as dividends" (p. 103). There are many rash conclusions, such as that the credit of banks in England is so unstable "that the collapse of the whole structure would hardly be a surprise."

The first chapter, which treats of primitive money, is good; the second chapter, which treats of coinage, is still better. Bimetallism is discussed more fully than other topics, and in excellent style. The countless experiments with bimetallism are summarized, showing how "the practicability of using two metals simultaneously as money was tried in every conceivable fashion and found impossible." The remaining five chapters have to do with credit for the most part, and are much better on the whole than the defects about banking noted above would indicate.

F. R. CLOW.

The Rise of Commercial Banking Institutions in the United States. By ADOLPH OSCAR ELIASON. Minneapolis: University of Minnesota Press, 1901. 8vo, pp. 69.

THIS very brief historical study seeks for the source of commercial banking in the United States, as sharply distinguished from the colonial "banks" or paper-money issues. The first chapter, in a series of short paragraphs, makes reference to the most important incidents in the paper-money experience of the colonies with a multitude of footnotes which invite further investigation.

The writer finds that the Bank of North America was the first institution worthy of the name bank, in the modern sense — a place where private credit could be made the basis for commercial exchanges through a check and deposit system.

This backwardness is attributed to the industrial self-sufficiency of the family and the commercial dependence upon England.

The material used might have been expanded with much advantage to the work in interest and usefulness.

An extensive bibliography is appended.

MURRAY S. WILDMAN.

The Fundamental Problem in Monetary Science. By CORREA MOYLAN WALSH. New York; The Macmillan Company, 1903. 12mo, pp. x + 383.

"ECONOMICS pretends to be a science. But economics cannot be a science as long as there continue among its most conspicuous adepts

the confusion of ideas and fallaciousness of argumentation that we have been tracing." Our author speaks such words (p. 639) after having, in a detailed examination of the literature on the standard of deferred payments, abundantly justified words like these, and, as one is now and then compelled to admit, having himself occasionally illustrated them. In truth there is hardly a writer on the theory of money who does not fare badly under the test of Mr. Walsh's severe logic and his deep-going, acute, unsparing criticism. Occasionally, also, it is true that this criticism, while justifiable, and applied in a coldly impersonal temper, impresses one as almost ruthless in the surgeon-like quality with which the scalpel is handled. In some instances also the damage inflicted strikes one as more apparent than real; in not a few cases a more sympathetic interpretation of the argument under criticism, or of the theory under discussion, might, with a larger charity for verbal inconsistencies or a better recognition of economy of space, have furnished forth a doctrine of larger claims to consideration. These faults, however, are not serious in view of the evident impartiality and sincerity of intention in the author's work; the opportunity for reasonable mistake is commonly fairly chargeable to the writer who is summoned to do penance for it; and the prodigious learning of the work attempted will excuse the author's occasional missing of a meaning at best not over-plain.

"What is in good money the quality that constitutes its goodness?" Money being used as a measure of value and as a store of value over wide intervals of space and time, it has — our author declares — become a commonplace that money should be as stable in value as possible. "It would be idle to cite authorities;" this "with the fewest exceptions economists have affirmed." So much, therefore, may be assumed; but the real and difficult inquiry is "*What kind of value is it that money measures and stores and should possess in a stable manner?* This is the fundamental problem in monetary science."

"Intrinsic value" may be dismissed as meaning merely that the metallic weight and fineness of money is the invariable quality desired — a rule that would through thick and thin require that a metallic system of money, once established, should be maintained unchanged forever, no matter how cheap or plenty or dirty it, whether gold or copper or iron, should become.

Likewise the value of money, in the sense of the interest rent for it, or of the discount computed for the use of it or of capital, is dismissed from consideration, seemingly upon the ground of its evident

absurdity and its general repudiation. (1) "True economic value . . . . is a value with several varieties or species;" economists have sometimes meant by value "little more than what is signified by the word utility; and this may be distinguished as use-value;" (2) there is *esteem-value*, indicating "the energy with which we cling to what we possess and the effort we are willing to put forth to acquire things;" (3) *cost-value*, "the correlative of the effort of labor which things cost their producers;" (4) *exchange-value* (p. 6).

It is, then, between these four conceptions of value, or rather between three out of these four, that we have to choose; for

> the idea of use-value is of course to be left out of consideration; . . . money has use-value only in consequence of having exchange-value. . . . . Perhaps it may even be right to assert, with Rau, that money has not use-value at all, since it is never consumed. The question then narrows itself to the three positions, whether money shall be stable in exchange-value, or in cost-value, or in esteem-value. (P. 11.)

Our author's notion of *esteem-value*, which, early and late, comes in for a deal of discussion, deserves some examination at this point, for it is not easy to make out precisely what he means by the term. In the passage just cited it is in a manner set off against cost-value and measured, not in the labor or burden to the producer, but in the effort which the producer is disposed to put forth in the process of acquisition (p. 6). On p. 7 esteem-value is described as

> greater or smaller, according to the desire awakened in us by the utility of the thing in the particular circumstances in which we find ourselves; . . . . if we already possess much of it, we may be satisfied, and want no more of it; . . . . the want we feel . . . . is not proportional to its utility, but to its utility and rarity.

This sounds very like marginal utility; and yet as such, one may remark by the way, it must be a personal category, as incapable as is cost-value of comparison with any other man's appreciation of value, since the desires or pleasures of different men are not commensurable quantities. The ascription to Jevons of the discovery of esteem-value would indicate that his identification of it with final utility is intended to be adopted (p. 11). But on p. 12, as before on p. 6 and later on p. 72, esteem-value is stated as "the difficulty of obtaining possession of goods," in contradistinction to cost-value as "the difficulty of producing goods"—both, however, being regarded as subheads under labor-value. And on p. 296 it is said

cost-value is identified with the labor required to produce or acquire commodities, and esteem-value is identified with the final utility in commodities sufficient to overcome the disutility of the labor required to produce or acquire them.

And on p. 86, esteem-value is set forth as that kind of value which the Austrian School "sets up as the principal and essential kind of value, or value proper." Without attempting to pass judgment on the ultimate merits of the case, it is safe to assert that this is well adapted to make an Austrian uneasy. And on p. 187 the esteem-value of money is stated to be its cost-value. Yet, reverting to p. 7, we find that "in the long run cost-value cannot be above esteem-value, ... but it can remain indefinitely below esteem-value."

On the whole, without intending to be captious, it is fair to call this perplexing and to express the regret that one who has so acutely and successfully read many another writer deserved lessons upon the dangers of careless terminology and faulty logic has not been able to do better than this himself. But for well or ill we shall best follow the spirit of our author's discussion by assuming that in *esteem-value* he is trying to get at the same thing that the Austrians are trying to get at in marginal utility or marginal value — whatever this may be; and however clearly, on further examination, this notion manifests its essential qualities of intangibility and unintelligibility.

> At the beginning, therefore, the problem may be regarded as principally a two-faced one: Ought money to be stable in *commodity-value*, or exchange-value; or ought it to be stable in *labor-value*, whether this be cost-value or esteem-value? (P. 12.)

And now, based all the while upon this assumption that the essential problem is a value problem, there follow three hundred pages of close work — an incredibly widely-read marshaling and grouping of authorities; clear, compact, and masterly exposition; searching logical analysis; acute, incisive, discriminating, and destructive criticism — all the while preserving the amenities of discussion in the dry light of scientific temper, and, even when most unjust in interpretation, manifesting the most evident and unquestionable fairness of purpose.

It is made clear that an inquiry into the nature of a measure of value is not at all the same thing as an inquiry into the causes of value; so, while our author pronounces the labor-cost theory of value to be past the need of further discrediting, he yet regards labor-cost as entitled to a day in court as a standard of deferred payments. In the opinion of

the present writer, Mr. Walsh's not over-short, but altogether thorough, review of the case leaves little of the labor-cost doctrine for any purpose, despite the long array of authoritative names cited in support of it.

His discussion of esteem-value seems much less satisfactory; but this may be due to the difficulty already admitted of finding out just what esteem-value is. Perhaps it is not worth while to insist further upon this point; yet esteem-value would be an intelligible concept if taken as market-value viewed exclusively from the side of demand, which view would not widely depart from the Austrian view at its best; but, as such, esteem-value, even where conditions of supply remain unchanged, is not to be regarded as purely a question of desires, but of desires restrained and limited by the necessity of choice as against other and varying possible applications of purchasing power, and as finally expressed through the offer of this purchasing power. The poor man foregoes what the rich man purchases, not as a question of weaker desires or of actual lack of purchasing power but of displacement of other commodities of greater relative importance.

But this relatedness of esteem-value to other esteem-values would reduce the concept of value to *relative* marginal utility in the personal reckoning — a purely individual category — which is really what the Austrian means or ought to mean by marginal utility, viz., the marginal man's estimate of one utility compared with that other best utility which the same purchasing power will command. But, in this view of the case, exchange-value and esteem-value are one and the same; our author can be justified in making them two, only upon the assumption that the Austrian analysis is faulty, which position should, at the hands of a strict logician, require some argument. And yet on p. 184 Walras is interpreted to hold that "there are no values, but only relations of values; which can hardly bear other interpretation than that exchange-values are relations of esteem-values." Nevertheless, our author's position is something other; on p. 37 he says that "wheat, or corn in general, or food of any sort is no more stable in use-value than is any other article the use of which is not dependent upon fashion;" one judges for the reason that these commodities vary in supply and therefore vary in marginal service; and "fortunately . . . . it is by no means stable in esteem-value; . . . . one of the blessings of material progress, enlarging room for spiritual increase, is that our daily bread should fall in esteem-value." This must mean one of two things: (1) that food is getting cheaper in terms of human effort — a thing both true and fortunate; or (2) that food is cheapening faster than the

general run of commodities—a thing which is not true and would be questionable as a matter of good fortune; and it is a meaning which, while falling under the Austrian notion of relative marginal utility, would fall foul of the notion expressed on pp. 6, 12, and 72, of esteem-value as "the difficulty of obtaining possession of goods." But on p. 35: "In the idea that a thing will be stable in value if the relation between its supply and demand remains constant, there resides a double meaning introduced by the double meaning in the word demand"—viz., (1) effective demand and (2) mere desire. In (1) constancy in demand implies constant exchange-value; in (2) constancy in esteem-value. "In the latter case the idea is that the thing is supplied in quantity to yield a constant amount of satisfaction, thereby awakening a constant amount of esteem for it." Now this is a concept of constant *total* utility and not of constant marginal utility; it excludes relativity of usefulness from the concept of esteem-value; for this notion of relativity is by the author confined to case (1), that of effective demand, where

> the idea is that the thing is supplied in quantity sufficient to yield an amount of satisfaction which retains a constant proportion to the amount of satisfaction yielded by the supplies of all things collectively, or in the average, thereby awakening in people an amount of esteem equal to the average amount of esteem awakened in them by all other things.

On the whole it is fairly clear that nothing is clear in this discussion of esteem-value, and that nothing much is likely to come of it; we shall therefore the more readily acquiesce in our author's conclusion that no place is to be awarded to esteem-values in this threefold or fourfold competition.

It therefore follows—use-value having been excluded by general consent, and a like consent having been more tardily and somewhat mistily gained for excluding esteem-value, and cost-value having been adequately and convincingly driven from the field—that to exchange-value must be awarded the decision—unless indeed it may be possible to give to labor cost some rights through partnership with exchange-value or by some method of compromise. Such method or methods, however, our author pronounces with good reason to be illogical and a misjoinder. Any attempt toward a composite standard or mixture "would seem to be condemned at the outset by the fact that it is not a standard of any kind of value" (p. 24).

But now it becomes necessary to retrace our steps and to inquire by just what kind of reasoning it was established that the standard of

payment must be somehow worked out in terms of value; for this one position proved or premised, there seems to be no escape from the author's conclusion. Was this position really proved?

After mentioning (1) use-value or utility, (2) esteem-value, (3) cost-value, and (4) exchange-value, our author (p. 11) goes on to say "the idea of use-value is of course to be left out of consideration. We are not concerned whether money remains constant or not in use-value;" money appeals to us, *qua* money, only in its aspect of exchangeability. To this we are constrained to assent; surely the thing of importance in money, *qua* money, is not the use-value of the bullion—not its subjective value, but the subjective exchange-value of it—to adopt for the moment the Austrian jargon. And this is what our author has in mind; for he says "the only use we make of money as money is to exchange it for the things we really want. Or perhaps even it may be right to assert with Rau that money has not use-value at all, since it is never consumed," etc. Therefore, it is concluded, since we cannot consider money in the aspect of its direct utility as bullion for consumption, but only in the aspect of what it will exchange for, we are are also somehow held to consider those things into which it is to be exchanged, not in their aspect of utility, but in terms of some sort of value—of which value there are, we recall, these three remaining kinds, cost, esteem and exchange.

And so here we are, as early as on the eleventh page, deftly, neatly, safely, by some devilish cantrip sleight, landed before our threefold instead of fourfold problem. And we have, it seems, submitted ourselves to more than this limitation to this threefold aspect—cost, esteem, and exchange—for now, we bethink us, we are to discuss the problem purely as one of value—cost-value, esteem-value, or exchange-value. And how came this? By the fact that as early as p. 1—running over onto p. 2—it was set forth that "that is the best money which approaches nearest to being stable in value;" this is a commonplace—everybody "with the fewest exceptions" admits it, nay affirms it—so let it be assumed without more ado; and if later any one, after this his full and frank admission, should be tempted to break faith and to hark back to the total-utility standard of payment or to anything of the sort, he shall be told that no question of the utility of what the money will buy can be raised, but only the question of value, since the direct use-value of money is not in the discussion, it being true that we cannot consume the money, *qua* money.

Verily, to bring us to this conclusion so easily there was needed

some manner of beguilement worked upon us, and this by one who has little patience with the unsupported assumptions with which he finds monetary science to be filled. It is indeed certain that our author in his three hundred pages of acute critical analysis has taken many an argumentative fall out of the masters of monetary science, has sent them reeling from him logically tripped and grotesquely sprawling, but never a one of them all to find himself in a more embarrassing plight than this.

So, after all, it was argumentatively admissible that Ross and Clark and two or three others should have made some talk about total utility or changing standards of living, and should, by devices more or less plausible, have found excuse for modifying the strict rule of equal command over commodities.

Nor is our author justified in interpreting all — perhaps even any — of these positions, as a mixture of the commodity and the wages standards. To urge that a comprehensive multiple standard must contemplate more than material tangible commodities,— should include not fiddles only, but fiddling; should allow for all consumable goods, whatever the form which the valuable fact may assume; should allow, in short, for the actual structure of the budget according to which incomes are expended, and to the extent that expenditure is for housemaids, teachers, preachers, and doctors should take account of these services as of all consumption goods,— is not to advocate the wages standard in any sense resembling the interpretation placed by our author upon the term; *e. g.*:

> The intermediate standard recommended by these authors could be justified in either of two ways. It could be realized by making out the index numbers for prices, and again the index numbers for wages or earnings, and then drawing a mean between them, assigning equal importance or weight to each; or by putting all in the same list, taking care to give as much weight to all the wages or earnings together as to all the prices together.

And in a note: "this requirement is on the assumption that an exactly mid-way position is desired" (p. 214).

In summing up the merits and the demerits of this important, interesting, and serviceful book, one abates no measure of praise for the critical side of the work as a whole, in expressing the wish that the constructive side were equally creditable, and that to his wide and exhaustive command of the literature of money the author had added a more thorough familiarity with the field of value discussion; one inclines to believe that in such case the subject of value would have

received a less important and directing function in the discussion, and that, with less heard about value, more would have been heard about utility—all to the great profit of a book which, nevertheless, is upon the whole an admirable piece of work.

H. J. DAVENPORT.

Dictionnaire du commerce de l'industrie et de la banque. By MM. YVES GUYOT and A. RAFFALOVICH. Paris: Gillaumin & C^ie^, 1901. 2 vols., 8vo, pp. 1286 and 1702.

UNDER the above title the editors have, with the assistance of some four hundred contributors, brought together within the space of two large volumes a mass of material on various subjects. The work purports to be a dictionary of commerce, industry and banking. Its scope is more analogous to that of a general encyclopædia. in which geography plays a disproportionate rôle. It is questionable whether much of this easily accessible material might not be omitted and other subjects emphasized with profit. The great advantage of the work lies in the fact that most of the contributors are experts of a high order. Their large number has rendered more difficult the task of the editors. The work lacks symmetry. Although a dictionary of commerce, industry and banking, the articles "Commerce" and "Industry" are condensed to three pages. Industry is, of course, treated in detail under the various commodities, but "commerce" is minimized. Some articles are treated in a comparative way, as, for example, that on banking, where about eight pages are devoted to the "Bank of France" and over three times the number to foreign banks. On the other hand, twenty pages are devoted to the French tariff, and nothing is said in regard to the tariff administration or history of foreign countries. In the five-page article on inland navigation, four and one-half pages are devoted to France. Some articles contain bibliographies, but there is no uniformity in the matter. The generally high expert character of the contributors renders especially valuable that phase of the work—a most important phase—relating to industrial technology.

GEORGE M. FISK.

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Studies in the Evolution of Industrial Society. By RICHARD T. ELY ("The Citizens Library of Economics, Politics, and Sociology"). New York: The Macmillan Co., 1903. 8vo, pp. xviii + 497.

IN general plan Professor Ely's latest book is much like Professor Bücher's *Industrial Evolution.* Both books are collections of essays on

various phases of economic development, and owe such unity as they possess solely to the emphasis put on "the thought of industrial evolution," as Professor Ely phrases it in his preface. Both books are divided into two parts, though Ely has made the division more prominent in the table of contents than has Bücher. The first part — Ely's "General Survey" and Bücher's first four essays — traces the general course of economic development from savagery to civilization. The second part — Ely's "Special Problems of Industrial Evolution" and Bücher's last six essays — provides an appropriate place for the republication of miscellaneous papers.

Of these two parts the first seems more inviting. Essays on "special problems of industrial evolution" we have in abundance. Indeed, most of the economic publications of the day might be ranged under such a caption quite as properly as Ely's and Bücher's essays. But serious attempts to take a "general survey" of the course of economic evolution are not common. Consequently, when an economist of Professor Ely's prominence addresses himself to this theme, he may be confident of receiving wide attention from students. Many such will be disappointed to find that Professor Ely has decided to devote less space to the "general survey" than to the "special problems." The first part occupies but 119 pages, less than a quarter of the book. Of course, such a limited space permits only the most sketchy treatment of the subject. What Professor Ely says in his preface of the whole book applies pre-eminently to this portion — "there is scarcely a chapter . . . . which could not be expanded into a volume."

The survey is based upon List's classification of "economic stages" according to the dominant mode of production. This classification, which in Ely's version distinguishes (1) the hunting and fishing stage; (2) the pastoral stage; (3) the agricultural stage; (4) the handicraft stage; and (5) the industrial stage, still remains in his opinion "the most serviceable as a framework within which to study the course of economic development" (p. 24). The discussion consists of a brief characterization of each of these five stages. For example, in treating of the first stage Ely points out that hunters and fishers lead a nomadic life; that when they practice cultivation at all they do not get beyond "hoe-culture;" that they keep few if any slaves; that they lack foresight; that magic and ceremonial play a large rôle in the economic operations; that their life is largely communal; and that trade is little developed among them.

This plan of investigation is open to the serious objection that it

does not afford even a bird's-eye view of "the course of economic development." To enumerate and characterize the "economic stages" is to state rather than to solve the important problem. This problem is not how do peoples in the usual stages live, but rather how and why have some peoples advanced from one stage to another. Regarding this question Professor Ely says but very little; even that little is sometimes of questionable validity. The suggestion, *e. g.*, that man "seems first to have tamed animals for amusement" (p. 39) will hardly be acceptable to students who are acquainted with recent discussions of domestication that assign the predominant rôle to religious factors.

Certain of the details as well as the general plan of Professor Ely's discussion are open to criticism. These minor blemishes seem due to the manner in which the "comparative method" is employed. That this method of dealing with ethnological data is capable of producing valuable results in the hands of a candid investigator whose knowledge of the material is exhaustive, no one doubts. But the wrecks of many exploded theories prove that the method may lead to unsound generalizations when used by anyone whose ethnological reading has not been very wide. Professor Ely's misadventures with it but illustrate its dangers afresh. He writes as if a quotation showing the presence or absence of a certain institution among any tribe in one of his economic stages is satisfactory evidence of its presence or absence among all other tribes in the same stage. Professor Ely would no doubt repudiate such a proposition if stated in set terms, but the discovery that his views are substantiated by descriptions of certain tribes has seemingly persuaded him that investigation of other tribes in the same stage is unnecessary. So he is brought very naturally to assert as generally valid propositions that may not apply at all to some of the tribes with whose manner of life he is unacquainted. For example, all the above-enumerated characteristics of the economic life of hunters and fishers may hold true of the Australian aborigines, but they do not all hold true of Eskimos and the Indians of British Columbia. The last-named group of tribes belong beyond question in Ely's first stage, but they had permanent villages, numerous slaves, and an active trade. Again, Professor Ely speaks of "the contrast between rich and poor making its appearance" among pastoral tribes (p. 43). Had he thought of these same Eskimos and British Columbians, he would have recognized that such contrasts are sometimes prominent features in the life of hunters and fishers.

It does not seem unreasonable to call attention to the looseness of

these statements, and others like them that might be quoted. The harm is not merely that the statements are inaccurate, but also that no adequate impression is conveyed of the complexity of economic development. The reader is in danger of forming a hazy notion that practically identical habits of life prevail among all peoples in the same "stage," and that economic evolution consists simply in passing on as promptly as possible from one of these fixed stages to the next. Of the wide variety of habits of thought and action, of the many directions in which progress may be made, of the various circumstances that may promote or hinder development, there are few suggestions. Not only does the picture lack details — that much is inevitable from its small size — but also there is no hint that details exist that would appear clearly on a larger canvas. Had Professor Ely taken more space for his "general survey," he would no doubt have read more widely, and written more circumspectly. Allowances have to be made for the small scale of the discussion, but when all has been said the question remains whether a discussion so limited as to be inaccurate is of any value to the special student or proper for the casual reader.

If Professor Ely's "General Survey" must be characterized as defective in plan, inaccurate in detail, and misleading in effect, much pleasanter things can be said of the essays on "special problems" that occupy three-fourths of the book. These papers deal with a wide range of important questions — competition, monopolies, and trusts, municipal ownership, concentration of wealth, inheritance, public expenditures, the labor problem, social ethics and the possibilities of social reform. It is by his sane discussions of such questions as these that Professor Ely has gained so wide an influence. In them he shows to the best advantage. But ungracious as it may seem, there is less reason for dwelling upon the merits of these papers than upon the defects of the "General Survey." For the chapters of the second part are based upon previous publications which must already be familiar to many economic students, and the reader who has not seen these particular articles before does not require the assurance that they are characterized by a temperate point of view, careful presentation of facts and opinions, and width and freshness of information. These virtues of Professor Ely's work in his old fields are familiar; it is the faults of the over-hasty excursion into a new field that attract attention by their novelty.

W. C. MITCHELL.

UNIVERSITY OF CALIFORNIA.

Forschungen zur hamburgischen Handelsgeschichte. III. By DR. ERNST BAASCH. (Containing the following three articles: (1) "Die Organisation des alten Land-, Fuhr- und Frachtwesens in Hamburg;" (2) "Die hamburgischen Waren-Auktionen vor der Einführung der Reichs-Gewerbe-Ordnung;" (3) "Geschichte des hamburgischen Waren-Preiskurant.") Hamburg: Herold, 1902. 8vo, pp. 186.

THE learned author of the above-mentioned volume of monographs has contributed much valuable material to the history of the free city of Hamburg, and in some measure also to the general history of commerce and national intercommunication. His exceedingly painstaking and minute treatment of certain phases of that part of the overland trade which centered in Hamburg, the transit service, particularly as it concerned loading and unloading of goods from and to the city, his account of the city's methods of disposing of goods that had accumulated and burdened the market, and finally of the daily or weekly announcement of price lists for the commodities most in demand, are all valuable additions to the many excellent monographs on city life and history lately published in Germany. For the foreign reader, however, who does not seek the detailed account, but the more general summary, the information offered in these papers is of a too local character to claim his interest to any large extent. Dr. Baasch's book will therefore not command many readers on this side of the water, though the number in his own country will doubtless be proportionally greater.

A. M. W.

UNIVERSITY OF WYOMING.

The American Invaders. By F. A. MCKENZIE. London: Grant Richards, 1902. 8vo, pp. ix + 243.

THIS book gathers together a quantity of facts relating to the successes which American exporters have achieved in British markets. The discussion is permeated with a wail of alarm over the impending downfall of England's commercial supremacy. In its tone and method of construction *The American Invaders* bears a striking resemblance to "Made in Germany." Mr. McKenzie believes that the American trusts are compelled by the large productive capacity to sell largely in foreign lands, and that their large capital and superior organization will enable them to win an easy victory.

He is impressed by the power of the American railway combinations, and by the ease with which American business interests bend the national legislature to their own purposes. He sees great danger to British shipping in the prospect of subsidies in the United States, and is apprehensive lest the center of financial influence may be shifted from New York to London. Aside from its predictions of commercial disaster, however, the volume contains a large amount of interesting material, not entirely new, but conveniently assembled. This is particularly true of the description of the contest of the American Tobacco Co., the United Shoe Machinery Co., and the Diamond Match Co., and of the introduction of American electrical machinery and appliances. The story of the tobacco war is particularly well told and furnishes a number of interesting illustrations of methods by which competition can be destroyed. Mr. McKenzie attributes the success of the Diamond Match and United Shoe Machinery companies quite as much to the sluggishness and lack of enterprise of English manufacturers as to the superior endowments of their antagonists. He is also deeply impressed with the success of American advertising methods and with the care with which American manufacturers follow the tastes of the foreign customers and the speed with which orders are executed. American consular reports do not bear him out in these conclusions. The superiority of American railway practice comes in for a large share of the author's attention. An interesting feature of the discussion, whose relevancy, however, is not entirely apparent, is a brief history of the International Mercantile Marine Co. A large part of the book is made up of quotations from trade papers, letters, and reports. The absence of any searching analysis of causes, and the almost exclusive reliance for material upon the commercial news of the day, render it unlikely that *The American Invaders* will survive the temporary conditions which have occasioned its publication. At the same time, it contains a large number of interesting facts which have been carefully verified and will have some value as a book of temporary reference.

E. S. MEADE.

THE UNIVERSITY OF PENNSYLVANIA.

American Industrial Problems. By W. R. LAWSON. New York: McClure, Phillips & Co., 1902. 8vo, pp. 394.

AMONG the many attempts which foreigners have made to describe the industrial and financial situation of the United States this book is

worthy of a high place. The author has accurately comprehended the significance of the great industrial expansion of the United States during the past five years, and sees much more clearly than many of his contemporaries its bearing upon the European commercial situation. The most valuable portion of the book is contained in chaps. 10–18, in which the financial aspects of the American situation are discussed. Here the writer is evidently on familiar grounds, and we may remark in passing that the explanation of his familiarity with American financial methods is possibly to be found in the fact that many of the financial exploits of the United States in recent years could be duplicated on perhaps a smaller scale from the recent financial history of Great Britain. Mr. Lawson explains the function of the promoter, showing how his profits come from buying a railroad or a number of factories at a low price, combining them with other railroads or other factories, recapitalizing them, and selling the certificates of the new capitalization to the public at a large advance on the original purchase price. He further shows the intimate dependence of the promoter on the underwriter, who advances the funds necessary in the preliminary stages of the flotation. Underwriting is made possible by the co-operation of bankers who engage in these semi-speculative operations to an extent unknown among the more conservative bankers of the Old World. In illustration of these statements, the author presents a readable outline of the achievements of Mr. Jay Gould, whom he places in a more favorable light than many of his American critics, the Northern Pacific corner, the heavy stock purchases of the Pennsylvania Railroad, the formation of the Rock Island Co., the purchase of the Burlington by the Great Northern and the Northern Pacific, the formation of the Northern Securities Co., and the Louisville & Nashville deal. He explains the use of the collateral trust bond in carrying forward these enormous operations, by which the credit of one road is used for the purchase of another and the standing of securities is placed upon a higher level under cover of a holding company than would otherwise be possible. All these deals and combinations have been carried through in furtherance of plans which aimed eventually at the stock market. His discussion of American speculation is unusually good. He believes that the entire community in the United States is infected with the gambling spirit, which finds abundant outlet on the stock exchanges. The American people, he says, are ready to follow the leaders of speculation to the most extraordinary length, if the offer is made to them at the psychological moment to buy vast

quantities of securities on the mere representation of some prominent banker or financier that these are worth purchasing. Taking advantage of this speculative temper, the leaders of finance are constantly engaged in formulating new propositions for sale to the public. In this attempt, as above mentioned, they are heartily assisted by the banks, the most prominent of which they control, and which place unlimited funds at their disposal for the prosecution of their enterprises. The author justly observes that the consolidation of railroad and industrial properties on the scale which has been followed in the United States in recent years, and which was made possible by the capitalization of these consolidations at the most extravagant figures, may prove a source of great danger to American prosperity. On this point he observes that syndicates of all kinds and in all markets are being financed by banks of various degrees of solidity.

> They are, more than any other kind of speculation, at the mercy of future events. From day to day they are taking chances on what may happen in the next half-hour. So far nothing terrible has happened this year, but the air is full of alarms as to what 1903 may bring forth. Dear money, a falling-off in trade, and sundry other dark spots begin to show on the horizon. The speculating syndicates may well feel uneasy, and the banks that are wet-nursing them cannot feel very comfortable either. It will be no great misfortune if the syndicates should have to go, but if the reaction should not stop there, if it should drag down some of the banks, what then? . . . . Should in the near future a severe strain be thrown on the United States banks, railroad finance will have its share of responsibility, and no small one either.

In the light of recent events in the stock market, Mr. Lawson's forecast stamps him as a careful observer, and it is impossible to refuse assent to his conclusion that before the United States shall become the financial center of the world, radical and drastic reforms in our financial methods must first be accomplished.

That portion of his discussion in which the author deals with the industrial and commercial problems of the United States is less satisfactory, perhaps because the field is too vast to be covered within the limits which he has set for himself. His analysis of American foreign trade is acute, and from it he arrives at the conclusion that Europe is in no serious danger from the American exporter. He finds that American exports of raw materials still make up the greater portion of her outbound trade, and that, while in the aggregate the exports of manufactured products have shown a remarkable increase, their amount in no single line is so large as to cause any serious apprehension to

foreign producers. The explanation for the large measure of industrial supremacy, which he admits the United States now possesses he finds in the personnel of American industry, in the large use of labor-saving machinery by unskilled workmen, in the rigid inspection and severe discipline to which the American workman uncomplainingly submits himself, in the absence of any serious opposition to the maximum output, and in the direction of industry by the most competent organizers in the world. While American agriculture is prosperous, a condition largely due to the extensive use of labor-saving machinery, he does not believe that this prosperity, so far at least as it is reflected in the exports of agricultural products, will be permanent. The rapid increase of population is making a constantly increasing demand upon the agricultural resources of the country, and the surplus available for export, in the author's opinion, is destined rapidly to diminish.

The book closes with a brief review of the leading American industries—farming, mining, manufacture, shipbuilding, shipping, and iron and steel. In these chapters there is nothing worthy of particular comment, save the doubt expressed in the discussion of the iron and steel industry whether the leading iron and steel producers, in spite of their admitted control of the raw material, will be able to sustain prices if the demand should decline. The errors of statement are neither numerous nor important, and do not appreciably detract from the merits of the book. Mr. Lawson has done a most creditable piece of work and has produced a volume which can be read with much more profit in the United States than by the public to which it is primarily addressed.

E. S. M.

Report on Changes in Rates of Wages and Hours of Labor in the United Kingdom in 1902, with Comparative Statistics for 1893–1901. London: Board of Trade (Labor Department), 1903. Pp. lxxxiv + 54.

THE rates of wages in the United Kingdom during the year 1900 had increased to such extent that the year's wage bill due to such changes has been roughly estimated at £6,000,000. The balance sheet for the following year, 1901, however, showed a decrease in wages, amounting to £1,600,000, and this was still further augmented by a falling off during 1902 to the extent of nearly £2,300,000.

Exhaustive tables contained in the report show the industries and number of wage-earners affected by changes in their rates of wages;

the net amount of weekly loss or gains has been presented for each industry, for each group of trade in the industry, and for each individual wage-earner. Other tables show the different locations in the United Kingdom that had been affected by such changes and contain the number of wage-workers that accepted the changes without strike, and of those who had the changes regulated through boards of conciliation, by arbitration, or by mutual arrangements, as well as those which submitted to such changes only after strike.

The same system of compilation has been observed in that part of the report dealing with changes in the hours of labor during 1902.

There are other comparative tables presented, covering a period from 1893 to 1901, and for each industry separately arranged. It appears from the report that the principal reductions in 1902 took place in the coal-mining industry, and they represent fully 95 per cent. of the total decrease recorded. The shipbuilding trades also were affected by reductions, and while changes in other industries on the whole were upward, yet the net result of all changes was a reduction, amounting to an average of 1s. 7½d. per head per week for about 11 per cent. of the total working population of the United Kingdom.

A total of 890,356 wage-earners had their wages affected by changes, and this amounted, for 793,000 persons, to a reduction of about 2s. per head per week, and for 92,000 persons to a raise in weekly wages of 1s. 2d.

Changes in working hours amounted to a reduction of 0.97 hours per week for 1,057,507 persons. The principal change was a reduction of one hour on Saturdays in the textile factories, and bleaching, printing, and dye works. This change had been decreed by act of Parliament, and took effect at the beginning of the year, reducing the working hours from 6½ to 5½ on Saturdays or from 56½ to 55½ for the whole week.

Unfavorable conditions in the building trades during the year 1902 have been recorded. The number of unemployed represented 4.2 per cent., as compared with 3.7 per cent. in 1901 and 2.5 per cent. in 1900; and carpenters and joiners sustained a reduction, while bricklayers, masons, slaters, plumbers, plasterers, painters, and decorators participated in a rise in wages.

The effect of changes in wages on weekly rates will be seen from the following table:

Industry	Number of Persons Affected	Average Weekly Change per Head	
		Increase	Decrease
Building trades	15,575	1s. 2¼d.	.....
Mining and quarrying	749,378	.....	1s. 11½d.
Metal, engineering, and shipbuilding	101,672	.....	0 3¾
Textile trades	2,107	1 4¼	
Clothing trades	3,112	1 10½	
Miscellaneous trades	10,641	0 4½	
Employees of public authorities	7,871	1 6¼	
Grand total	890,356	.....	1s. 7½d.

Changes in the rate of wages were effected in the case of 877,557 wage earners without strike. The methods employed were changes under sliding scale, affecting 172,988 persons; by conciliation or mediation, 536,959; by arbitration, 2,600; by mutual arrangements or otherwise, 165,010 persons. The number of workpeople which accepted changes only after strike were 12,790, of which 11,206 yielded to mutual arrangements.

The net results of changes in hours of labor have been summarized in the following manner:

Industry	Number of Persons Affected	Average Reduction per Head (Hours per Week)
Building trades	14,640	0.20
Mining and quarrying	566	8.90
Metal, engineering, and shipbuilding	496	5.87
Textile trades	1,037,000	0.96
Clothing trades	755	2.17
Miscellaneous trades	3,701	3.30
Employees of public authorities	349	7.51
Grand total	1,057,507	0.97

Changes in the hours of labor were effected in the case of 1,054,954 persons without strike, and 2,553 wage-workers submitted after strike.

The hours of work per week after changes have been effected have been shown as follows:

Building trades	Lowest 51, highest 56 hours per week
Mining and quarrying	8 hour shifts
Textile trades	55½ hours per week
Printing and allied trades	Lowest 50, highest 52½ hours per week

Lineotype operators—night work	44 hours
Woodworking and furnishing trades	53 hours
Food, etc., trades	60 hours' day work, 54 night work
Other trades	Lowest 50 hours, highest 56 hours
Employees of public authorities	Lowest 56 hours, highest 66½ hours.

JULIUS MOERSCH.

ST. PAUL.

Report on Strikes and Lockouts in the United Kingdom in 1902 and on Conciliation and Arbitration Boards. London: Board of Trade (Labor Department), 1903. 8vo, pp. 132.

THIS report has for its subject the various labor disputes that arose during 1902. The trades and industries and the number of work-people directly and indirectly affected by these disputes, have been enumerated; and duration of disputes, working time lost, causes and results, have been reviewed in many detailed tables. The different localities affected have been separately considered. Other tables covering a period of five years, 1898–1902, intended to serve for comparison, are presented, and another part of the report contains the awards in each dispute as they have been rendered by boards of conciliation and arbitration.

There have been 442 new disputes recorded in 1902, involving about 260,000 working people, or about 2.9 per cent. of the industrial population of the United Kingdom. The aggregate duration was about 3½ million working days, and nearly three-fourths of this loss was caused by disputes in the mining and quarrying industries.

The total number of labor disputes during 1902 were lower than in any of the preceding four years, but they involved more wage-workers than in any of the other years. The number of working days lost, however, was less than one-fourth of the time lost in 1898, amounting to 3,379,255 days in 1902, as compared with 15,289,478 in 1898. The net result of the loss in working days to the total working population of the United Kingdom can be estimated as having been less than half a day per head, during the whole year.

The principal causes for disputes were questions of wages, either demands for an increase or a defense against reductions, the employment of particular classes or persons, and working arrangements. Trades-unionism led up to other disputes, but those entered into on account of hours of labor were comparatively few and of no importance.

The general results of all labor disputes has been summarized as

follows: Disputes affecting 31.60 per cent. of the working people involved resulted in their favor, 30.40 per cent. in favor of employers, 35.65 per cent. were compromised, and 2.35 per cent. remained indefinite or unsettled. Various agencies were employed for settlements, 16 cases by arbitration, 13 by conciliation, 316 by direct arrangement or negotiation between the parties or their representatives, 40 by returning to work on employers' terms without negotiations, 47 by replacement of workpeople, 3 by closing of works, and 7 remained indefinite or unsettled.

The principal trades affected by disputes, their number and number of work-people affected, as well as duration of disputes, will be observed from the following summary table:

Trades	Number of Disputes	Number of Working People Directly and Indirectly Affected	Aggregate Duration in Working Days
Building trades	39	5,356	115,860
Mining and quarrying	168	208,526	2,550,047
Metal, engineering and shipbuilding	71	15,914	420,362
Textile trades	82	16,706	238,380
Clothing trades	23	2,790	54,044
Transport	14	1,590	10,027
Miscellaneous	41	3,679	84,133
Employees of public authorities	4	2,106	6,402
Grand total	442	256,667	3,479,255

J. M.

Trust Finance: A Study of the Genesis, Organization, and Management of Industrial Combinations. By EDWARD SHERWOOD MEADE. New York: D. Appleton & Company, 1903. 8vo, pp. x + 387.

ALL who have read Dr. Meade's articles which appeared from time to time in economic journals will welcome the present volume, which is no mere reprint of the earlier essays, but a much more thorough discussion of trust finance. Descriptions of the conditions leading to the organization of the trusts, and an account of the methods by which they were formed and by which their securities were floated, furnish the historical background for a discussion of the financial policy which such corporations would most wisely follow, and for a criticism of the policy which was generally adopted. Of particular interest is the more extended examination of the United States Steel Corporation, which in

its subsequent history has coincided well with the author's gloomy prognostications. Dr. Meade has been a pioneer in an untrodden field and in his researches has shown singular originality and acumen. The work is, however, at times open to criticism on the ground of too sweeping generalizations, and occasionally even for misunderstanding of technical facts. Doubtless much of this is due to the very circumstance that the author is a pioneer, and therefore the problems have not yet been surveyed from all sides and tested by prolonged examination.

Greatest emphasis is laid on the discussion of what the author calls the surplus reserve, which is defined as "that portion of the productive assets which represents the investment of the amount reserved out of profits for the purposes of the corporation before dividends are distributed to the stockholders." While the author has undoubtedly made a strong point in showing the desirability of accumulating such a surplus, it is to be regretted that in the discussion there is somewhat of contradiction and confusion. Thus on one page it is said that the Pennsylvania saves half its profits (p. 169), but the figures given elsewhere show that the net profits of this road are 15 million dollars and its dividends 12 millions (p. 162). The author is also vague in his use of the term "profits" for it is defined (p. 157) as the residue after payment of all expenses, including interest on funded debt, yet repeatedly the profits of the steel Corporation are given so as to include interest as well as net profits. This confusion leads to serious error in making comparison between railroads with their large interest charges and industrials almost free from bonded debt.

As an example of hasty generalization may be given the statement:

> A new corporation representing a new form of enterprise whose shares are to be thrown open to public subscription must in the nature of things be overcapitalized if its flotation is to succeed (p. 314).

One wonders what are the things whose nature is considered. What is to be said of the first great stock speculation in the United States, that in connection with the Bank of the United States, or of the English speculative mania in railroads in 1845–46, in both of which cases wild speculation occurred in new stocks selling at par or at a premium?

In the specific discussion of the United States Steel Corporation found in chap. xvi the author makes a most remarkable statement. Readers of the article as it appeared in the *Quarterly Journal of Economics* remember the severe criticism passed on the corporation for having issued so much stock, with dividend requirements so large that

it is impossible to pay the dividends and at the same time accumulate any considerable reserve. Consequently the stock has depreciated and become highly speculative. Dr. Meade suggests what would have been a conservative method of financing the corporation, saying:

> Suppose, for example, that the original capital of the United States Corporation had been limited to the amount of money which has been actually invested in the various properties of that corporation, and which has been estimated at from $150,000,000 to $500,000,000. Let the latter figure be chosen as the amount of the original investment, and suppose that the capital had been divided into $250,000,000 of 7 per cent. cumulative preferred stock and $250,000,000 common stock. After such a readjustment, the value of the preferred stock could be considered safe and it would probably sell around 150. The common stock, which now falters and staggers around 35, would, on this basis of capitalization, show earnings of more than $100,000,000, out of which a 25 per cent. dividend could safely be paid out of the profits of the current year, while $50,000,000 could be applied to the various improvements for which the directors are now trying to borrow that amount. Under these circumstances, on the basis of the Standard Oil stock, which represents a conservative capitalization, United States Steel common would sell around 400. (P. 301.)

To compare the two schemes the following table is submitted:

ACTUAL CAPITALIZATION OF THE UNITED STATES STEEL CORPORATION.[1]

Stock	Par Value	Dividends	Price	Present Value
Preferred	$510 million	$35.7 million	$82.5	$420.7 million
Common	508 "	20.3 "	35.0	177.8 "
Total	$1,018 million	$56.0 million		$598.5 million

PROPOSED CAPITALIZATION.

Preferred	$250 million	$17.5 million	$100	$250 million
Common	250 "	62.5 "	400	1,000 "
Total	$500 million	$80.0 million		$1,250 million

[1] In the table above the bonds are not included. This is probably correct, for in this immediate discussion Dr. Meade makes no reference to bonds, and elsewhere he says: "So far we have seen no reason to doubt the expediency of these bond issues" (p. 267). Even after adding the bonds to the first table, the charges are raised to only $72 million and the market value to $717 million. The quotations given are, of course, those current at the date of the book, not those of today.

Dr. Meade would have us believe that while the dividend payments of 56 million dollars are so high as to endanger the future of the stock, and consequently reduce the value from 1,018 million to 600 million dollars, yet a mere juggling in certificates would enable the company to pay 80 million dollars, not only without injury, but with the market value of the stock raised to more than twice what it was then worth. It should be noted that the low price was not attributed to the smaller dividends, Dr. Meade's whole argument being that steel stocks were low because dividends were too high. Yet he claims that raising the dividends over 50 per cent. with no change in earnings would have no bad effect under the new arrangement. Is there not here an opportunity for some young Napoleon of finance to make a fortune? Could Dr. Meade not manage quietly to buy up the entire issue of steel stock, cancel half of it, and sell the remainder at an increase of 650 million dollars? The transaction would be even more interesting than that of the Cumæan Sibyl or the spice-burning performances of the East India Company.

Some other instances where careless or hurried work has marred Dr. Meade's book may briefly be cited. The investment of sinking funds in securities has been condemned in the following words:

> This sinking fund is of no benefit to the stockholder other than to ultimately decrease the liabilities of the company. During a long period, however, the corporation is under the necessity of paying interest, and at the same time contributing to the sinking fund. The result of this double contribution is, for perhaps twenty-five years, to compel the stockholder to pay double for the money borrowed. The amount available for dividends is therefore reduced and the stockholder suffers. (P. 241.)

There is certainly no double payment unless any payment of both principal and interest is a double payment. Furthermore the passage just quoted contradicts a previous one: "The purchase of securities for a sinking fund increases the income of the road by the amount of interest or dividends on those securities" (p. 161). It is also inconsistent with the recommendation that it is particularly desirable to invest the surplus reserve in high-grade bonds (p. 170). In general, although here again inconsistent passages might be cited, there seems to be a disregard of the fact that a sinking fund is nothing whatever but a surplus reserve, and must inevitably so appear on the balance sheet when the bonds are paid.

The estimate of the yield from bonds involves a gross error, for the figures are obtained by dividing the rate of interest by the price

paid for the bonds. This would give correct results in case of a perpetual annuity and is applied to stock, but is obviously wrong for bonds.

The claim is made that the distinctly high-priced stocks net the investor more than those which sell nearer par, but in the table given on p. 360 in each year the stock which happened to be selling at the highest premium was the one paying the lowest rate to the investor. And even more briefly, a debenture bond is not the same thing as an income bond (p. 266); the maintenance of a depreciation fund is not a source of savings (p. 91); the sale to stockholders at par of additional stock worth a premium is in no sense a case of stock-watering. (P. 303.)

With these criticisms or suggestions, it is a pleasure to speak of the evidences of original work, of the keen analyses of financial operations, of the admirable conclusions as to the bases of trust success, of the unusually clear summaries of arguments, and of the sprightliness of literary style which are characteristic of Dr. Meade's timely contribution to economic literature.

HENRY RAND HATFIELD.